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ABSTRACT

This module (part of a series of 24 modules) is on the impact of interaction among students in a learning situation on achievement, cognitive development, and social development. The genesis of these materials is in the 10 "clusters of capabilities," outlined in the paper, "A Common Body of Practice for Teachers: The Challenge of Public Law 94-142 to Teacher Education." These clusters form the proposed core of professional knowledge needed by teachers in the future. The module is to be used by teacher educators to reexamine and enhance their current practice in preparing classroom teachers to work competently and comfortably with children who have a wide range of individual needs. The module includes objectives, scales for assessing the degree to which the identified knowledge and practices are prevalent in an existing teacher education program, and self-assessment test items. Articles are appended on influences of peer interaction and school outcomes, the social integration of handicapped students, and cooperative instructional games. (JD)

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PROMOTING CONSTRUCTIVE STUDENT-STUDENT RELATIONSHIPS THROUGH COOPERATIVE LEARNING

ED249216

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Extending the Challenge:

Working Toward a Common Body of Practice for Teachers

Concerned educators have always wrestled with issues of excellence and professional development. It is argued, in the paper "A Common Body of Practice for Teachers: The Challenge of Public Law 94-142 to Teacher Education,"* that the Education for All Handicapped Children Act of 1975 provides the necessary impetus for a concerted reexamination of teacher education. Further, it is argued that this reexamination should enhance the process of establishing a body of knowledge common to the members of the teaching profession. The paper continues, then, by outlining clusters of capabilities that may be included in the common body of knowledge. These clusters of capabilities provide the basis for the following materials.

The materials are oriented toward assessment and development. First, the various components, rating scales, self-assessments, sets of objectives, and respective rationale and knowledge bases are designed to enable teacher educators to assess current practice relative to the knowledge, skills, and commitments outlined in the aforementioned paper. The assessment is conducted not necessarily to determine the worthiness of a program or practice, but rather to reexamine current practice in order to articulate essential common elements of teacher education. In effect then, the "challenge" paper and the ensuing materials incite further discussion regarding a common body of practice for teachers.

Second and closely aligned to assessment is the developmental perspective offered by these materials. The assessment process allows the user to view current practice on a developmental continuum. Therefore, desired or more appropriate practice is readily identifiable. On another, perhaps more important dimension, the "challenge" paper and these materials focus discussion on preservice teacher education. In making decisions regarding a common body of practice it is essential that specific knowledge, skill and commitment be acquired at the preservice level. It is also essential that other additional specific knowledge, skill, and commitment be acquired as a teacher is inducted into the profession and matures with years of experience. Differentiating among these levels of professional development is paramount. These materials can be used in forums in which focused discussion will explicate better the necessary elements of preservice teacher education. This explication will then allow more productive discourse on the necessary capabilities of beginning teachers and the necessary capabilities of experienced teachers.

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*Published by the American Association of Colleges for Teacher Education, Washington, D.C., 1980 ($5.50).

In brief, this work is an effort to capitalize on the creative ferment of the teaching profession in striving toward excellence and professional development. The work is to be viewed as evolutionary and formative. Contributions from our colleagues are heartily welcomed.

This paper presents one module in a series of resource materials which are designed *for use by teacher educators*. The genesis of these materials is in the ten "clusters of capabilities," outlined in the paper, "A Common Body of Practice for Teachers: The Challenge of Public Law 94-142 to Teacher Education," which form the proposed core of professional knowledge needed by professional teachers who will practice in the world of tomorrow. The resource materials are to be used by teacher educators to reexamine and enhance their current practice in preparing classroom teachers to work competently and comfortably with children who have a wide range of individual needs. Each module provides further elaboration of a specified "cluster of capabilities" - in this case, promoting constructive student-student relationships.

The reader may note that the format of this module deviates somewhat from that of other modules in this series. Considerably less attention is devoted to a discussion of the knowledge base of the subject matter with correspondingly greater attention devoted to specific ways of promoting cooperative learning goals in the classroom. This change in format was considered beneficial to fully explicating what might otherwise remain a somewhat abstract idea. References are made in the module to other publications which more fully discuss the knowledge and research base supporting the inclusion of this subject in the "common body of practice." Reviews of research are also appended to serve this end.

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OBJECTIVES FOR TEACHER EDUCATORS

Upon completion of this module you will be better able to instruct education students in the content of this module so that they:

1. Understand conceptually and operationally the nature of cooperative learning experiences.
2. Understand the reasons why cooperative learning experiences are important for successful mainstreaming of handicapped students into the regular classroom.
3. Know how to structure instructional sessions cooperatively.
4. Know the instructional outcomes best facilitated by the cooperative goal structure.
5. Have personally experienced a variety of cooperative learning situations.

REASONABLE OBJECTIVES FOR TEACHER EDUCATION

Students should have well-structured knowledge, practical skill, and commitments to professional performance in the following areas relating to the systematic use of cooperative learning activities:

1. Understanding conceptually and operationally the nature of cooperative learning experiences.
2. Understanding the reasons why cooperative learning experiences are important for successful mainstreaming of handicapped students into the regular classroom.
3. Knowing how to structure instructional sessions cooperatively.
4. Knowing the instructional outcomes facilitated by the use of cooperative learning experiences.

Rating Scale for the Teacher Preparation Program

Check the level that best describes your present teacher education program on the topic of cooperative learning activities

_____1. Students in preparation for teaching do not know anything about the advantages of cooperative over competitive and individualistic instruction. They view the important forms of interaction as being teacher-student and student-materials interaction.

_____2. Students in preparation for teaching have been introduced to strategies for cooperative instruction, but are mostly unaware of the overall importance of constructive student-student interaction.

_____3. Students have had specific training on how to structure cooperative learning activities, plus some exposure to the research literature supporting the use of cooperative instruction, but lack systematic, structured knowledge about cooperative learning and how to use it effectively.

_____4. Students in preparation for teaching have had broad didactic training in how to use cooperative learning activities, but practice is sporadic. Major emphasis, especially in practicums, goes to competitive and individualistic learning rather than cooperative learning.

_____5. Students in preparation for teaching have clear knowledge and practical skill in how to implement cooperative learning activities in the classroom and understand the rationale as to why cooperation is more effective in most instances than is competitive and individualistic instruction.

Self-Assessment

1. Define cooperative learning:

2. Define competitive learning:

3. Define individualistic learning:

Given below are a list of ways students can interact with each other in the classroom. Write "1" in the space below if you think the interaction pattern is best promoted by a cooperative goal structure, write "2" if you think the interaction pattern is best promoted by a competitive goal structure, and write "3" if you think the interaction pattern is best promoted by an individualistic goal structure.

_____4. Students tutor each other while working on a joint assignment.

_____5. Students work alone with their own set of materials and at their own pace, without attending to what other students are doing.

_____6. Students attempt to outperform each other.

_____7. Students encourage each other to complete assignments.

_____8. Students discuss with each other the material to be learned.

Given below are a list of potential outcomes from instructional situations. Write "1" if the outcome is most likely to result from a cooperative learning structure, write "2" if the outcome is most likely to result from a competitive learning structure, or write "3" if the outcome is most likely to result from an individualistic learning structure.

_____ 9. Maximal achievement by high, medium, and low ability students.

_____10. Mastery and use of high level cognitive reasoning strategies.

_____11. Liking for peers, including peers from different ethnic groups, ability levels, and social class background.

_____12. High self-esteem based on a unconditional acceptance of oneself.

_____13. Mastery of the interpersonal and group skills needed to interact effectively with other people.

14. Circle the letters indicating the essential components of a cooperative goal structure:

    a. criteria-referenced evaluation system
    b. individual learning goal
    c. norm-referenced evaluation system
    d. group learning goal
    e. rewarding students on the basis of individual
    f. rewarding students on the basis of group

15. Circle the letters indicating the essential compoents of a competitive goal structure:
    a. criteria-referenced evaluation system
    b. individual learning goal
    c. norm-referenced evaluation system
    d. group learning goal
    e. rewarding students on the basis of individual performance
    f. rewarding students on the basis of group performance
16. Circle the letters indicating the essential components of an individualistic goal structure:
    a. criteria-referenced evluation system
    b. individual learning goal
    c. norm-referenced evaluation system
    d. group learning goal
    e. rewarding students on the basis of individual performance
    f. rewarding students on the basis of group performance

Circle the letter indicating corresponding to the correct answer.

17. Social isolates are more often integrated into classroom friendship circles
    a. under individualistic conditions
    b. under cooperative conditions
    c. under competitive conditions
    d. none of the above

18. Handicapped students being mainstreamed into the regular classroom are more accepted into peer friendship circles
    a. under individualistic conditions
    b. under cooperative conditions
    c. under competitive conditions
    d. none of the above
19. The purpose of a goal structure is to
    a. make teaching easier
    b. help teachers establish good rapport with students
    c. create positive, negative, or no interdependence among students
    d. give students a variety of ways to learn
20. The two basic objectives for any cooperative learning group are:
    a. goal maintenance
    b. goal achievement
    c. relationship maintenance
    d. relationship achievement
21. Effective small group leadership depends on:
    a. the brightest student being appointed the leader
    b. keeping students on task, regardless of how effectively they can work with each other
    c. maintaining effective work relationships, regardless of how much learning takes place
    d. flexible behavior on the part of all members aimed at providing the actions necessary to maximize the learning of all group members and helping students work effectively with each other

22. Effective group leadership depends on: (identify three)
    - a. flexible behavior
    - b. the ability to diagnose what actions are needed at a particular time for the group to function most effectively
    - c. being the largest and physically strongest person in the group
    - d. the ability to fulfill the needed behaviors or to get other members to do them
    - e. The ability to motivate the group members to do what you want them to
    - f. Not offending anyone in the group
23. The most essential aspect of mainstreaming is to:
    - a. maximize the achievement of handicapped students
    - b. integrate handicapped students into constructive relationships with nonhandicapped peers
    - c. end the labelling and classifying of students
    - d. force parent involvement in the education of handicapped students

Attitude

Circle the number that most closely represents your attitude.

	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
24. I don't like to see students working with each other to complete class assignments.	1	2	3	4	5
25. I like to see which student is the smartest.	1	2	3	4	5

	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
26. I like to see students helping each other learn.	1	2	3	4	5
27. Students do better work when they work alone.	1	2	3	4	5
28. Students do better work when they work together in small groups.	1	2	3	4	5
29. I like to see students competing to see who is best.	1	2	3	4	5

Attitudes Toward Cooperative, Competitive, And Individualistic Learning Activities

Name______________________________________ School____________________

In responding to the items below, indicate how you feel generally about each statement. Circle the number that most accurately describes how you generally feel about the statement.

1 = Never 2 = Seldom 3 = Some of the time 4 = Most of the time 5 = Always

1.	In my classes I like students to work by themselves.	1--2--3--4--5
2.	In my classes I like students to take the initiative to help each other with their assignments.	1--2--3--4--5
3.	In my classes I like students to share their answers with each other.	1--2--3--4--5
4.	In my classes I like to motivate the students to try to get the best grade.	1--2--3--4--5
5.	In my classes I like to seats arranged so that students are not annoyed by each other.	1--2--3--4--5
6.	In my classes I like the smarter students to know they are doing well compared to their peers.	1--2--3--4--5
7.	In my classes I encourage students to finish their work before their classmates.	1--2--3--4--5
8.	In my classes I evaluate students on the basis of the performance of their work groups.	1--2--3--4--5
9.	In my classes I like students to work in teams.	1--2--3--4--5
10.	In my classes I encourage students to do their best to meet a preset criteria of excellence.	1--2--3--4--5

11. In my classes I encourage students to work alone. 1--2--3--4--5

12. In my classes I grade on a "curve." 1--2--3--4--5

Cooperative	Competitive	Individualistic
_____ 2.	_____ 4.	_____ 1.
_____ 3.	_____ 6.	_____ 5.
_____ 8.	_____ 7.	_____10.
_____ 9.	_____12.	_____11.
_____ Total	_____Total	_____Total

Place each number you circled in the spaces above and total each column. This provides you with a rough idea of your attitudes toward the use of cooperative, competitive, and individualistic learning activities in your classes.

INSTRUCTIONAL SESSIONS

The rest of this unit consists of six individual sessions that may be conducted with preservice education students. The sessions are:

1. The nature and definition of cooperatively structured instruction. In this session the students participate in a brief cooperative, competitive, and individualistic learning experience; listen to a lecture on the definitions of the three types of learning situations; and discuss their reactions.
2. The necessity of using cooperative learning situations to facilitate the integration of handicapped students into constructive relationships with nonhandicapped peers in the regular classroom. In this session students listen to a lecture on mainstreaming and the structure of learning situations when both handicapped and nonhandicapped students are present.
3. The procedures used in conducting cooperative learning situations. In this session students will participate in a model cooperative lesson and listen to a description of the specific steps involved in structuring a learning activity cooperatively.
4. The planning of a cooperative learning situation. This session focuses on having students take a lesson they plan to teach and structure it so that students work cooperatively.
5. The research support for the use of cooperative learning procedures. In this session students will discuss the instructional outcomes that research suggests will result from cooperative learning activities.

6. A summary of what students have learned. This session provides for students to discuss what they have learned and concluded from their reading and from the class sessions.

There is a basic format for each session:

1. Objectives for the session.
2. An introduction to precue and create an anticipatory set.
3. A pretest that helps students to understand what they are expected to learn from the session.
4. A simulation or micro-lesson to give students a concrete reality referent to discuss.
5. A lecture on the information and procedures on which the lesson focuses.
6. A group discussion to integrate students' experiences, reading assignments, lecture content, and reactions.
7. A summary that points the way to the next session and integrates the session into the entire unit.

Session 1: What Is Cooperative Learning?

Objectives

The objectives of this session are to:

1. Introduce the unit.
2. Define conceptually and operationally cooperative, competitive, and individualistic learning situations.

Reading Assignment

Johnson, D. W., & Johnson, R. Learning together and alone: Cooperation, competition, and individualization. Englewood Cliffs, N.J.: Prentice-Hall, 1975. Chapters 1 and 3.

Introduction

Beliefs about the impact of teacher-student and student-materials interaction are as prevalent in our educational system as concerns about reading, writing, and arithmethic. Some of the truisms commonly heard are:

"If the teacher loves the student, the student will learn."

"If the materials are well organized, student achievement will go up."

"If you want to raise students' performance on standardized math tests, use ________________ math series."

"If the students don't learn, the teacher is probably incompetent."

Sound familiar? Are these beliefs that educators you know hold? Both the teacher's instructional role and the nature of curriculum materials have received a great deal of attention in instructional theory. There has been extensive attention in teacher preservice and inservice on the interactions between students and curriculum materials and, more recently, attention has been focused on the interaction between students and the teacher. These, however, are not the most important forms of interaction within instruction situations. The form of interaction that most influences students' performance in instructional situations is student-student interaction. And the purpose of this module is to examine carefully the impact of interaction among students on achievement, cognitive development, and social development.

How students interact with each other depends primarily on the type of goal interdependence existing in the situation. Teachers, instructors, and professors can structure student learning goals so that students collaborate and help each other learn, compete to see who can achieve the most, and work alone striving to achieve a set criteria of excellence. By structuring student learning goals cooperatively, competitively, or individualically, teachers control whether students are positively interdependent with each other, negatively interdependent, or independent during the instructional activities. Technically, cooperative interdependence is based on a positive correlation among goal attainments, competitive interdependence is based on a negative correlation among goal attainments, and individualistic efforts are based on an absence of any correlation among goal attainments (Johnson & Johnson, 1975).

The way in which educators structure student learning goals determines how students interact with each other. Student interaction patterns are a major determinant of the cognitive and affective outcomes of instruction. There is a great deal of research that indicates if student-student interaction is structured carefully and appropriately students learn much more and feel more positive about the subject matter, each other, and themselves. This research covers a wide range of age levels and subject areas and has been available for some time. Why is it then, that appropriately structuring learning goals to affect student-student interaction is not an established part of a teacher's training? Why has this powerful classroom strategy been neglected while student-materials and teacher-student interaction have been emphasized? There is not a clear answer to these questions, but the discrepancy between what we know and what we do can be corrected. It is not difficult to prepare educators to select the appropriate goal structure for an instructional activity, implement it so that a certain student-student interaction pattern is achieved, and then instruct students in the social skills they need to interact appropriately and effectively with each other. It is time we did so.

Tip 1

Educators tend to emphasize materials-student and teacher-student interaction while ignoring student-student interaction. Examine two or three current educational psychology and teaching methods texts and determine how much emphasis is being placed on student-student interaction to promote achievement and cognitive and social development.

Student Pretest

1. Randomly place students in pairs.
2. Give the pretest, instructing students to:
    a. Discuss each question as a pair.
    b. Arrive at one answer to each question.
    c. Make sure both members of the pair agree on each answer and understand the rationale behind the answer.
3. Have the pairs combine into groups of four and repeat the procedure, deciding on one answer for each question for the group of four, and making sure that all members of the group agree on the answers.

4. Circle the letters indicating the essential components of a cooperative goal structure:
    a. Criteria-referenced evaluation system.
    b. Individual learning goal.
    c. Norm-referenced evaluation system.
    d. Group learning goal.
    e. Rewarding students on the basis of individual performance.
    f. Rewarding students on the basis of group performance.

2. Circle the letters indicating the essential components of a competitive goal structure:

    a. Criteria-referenced evaluation system.
    b. Individual learning goal.
    c. Norm-referenced evaluation system.
    d. Group learning goal.
    e. Rewarding students on the basis of individual performance.
    f. Rewarding students on the basis of group performance.

3. Circle the letters indicating the essential components of an individualistic goal structure:

    a. Criteria-referenced evaluation system.
    b. Individual learning goal.
    c. Norm-referenced evaluation system.
    d. Group learning goal.
    e. Rewarding students on the basis of individual performance.
    f. Rewarding students on the basis of group performance.

4. Given below is a list of ways students can interact with each other in the classroom. Indicate below whether you think the interaction pattern is best promoted by a cooperative (1), competitive (2), or individualistic (3) goal structure.

4. (continued)

____Students tutor each other while working on a joint assignment.

____Students work alone with their own set of materials and at their own pace, without attending to what other students are doing.

____Students attempt to outperform each other.

____Students encourage each other to complete assignments.

____Students discuss with each other the material to be learned.

____Students attempt to hide information from each other so that classmates will get lower scores on the tests.

5. Sue and Bob are pre-med students and are laboratory partners in a chemistry class in which grading is done on the "curve." Sue knows that only those with the highest grades will be admitted to medical school. When Bob asks her for help in writing up his experiments, she refuses because it would tend to equalize their grades. This is an example of which kind of learning?

   a. Cooperative.

   b. Competitive.

   c. Individualistic.

   d. All of the above.

6. A group of first aid students are given a task in which they are to rank order from first to last the steps in cardio-pulmonary resuscitation. They must reach a decision by consensus (i.e., all must agree on the final ranking). Evaluation of each student is based on the accuracy of the group's ranking. This is an example of which kind of learning?

   a. Cooperative.

   b. Competitive.

6. (continued)

   c. Individualistic.

   d. All of the above.

7. A swimming class is told that in order to pass the course each student must be able to perform at a certain competence level (i.e., swim four laps in a certain amount of time, tread water for 60 seconds, and so forth). This is example of what kind of learning?

   a. Cooperative.

   b. Competitive.

   c. Individualistic.

   d. All of the above.

Operational Definitions Of The Three Goal Structures

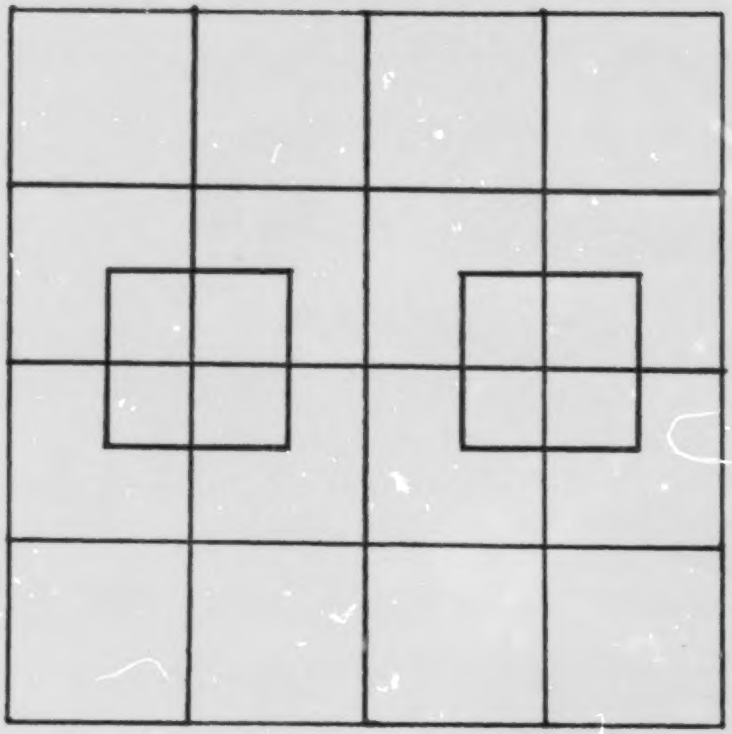
1. The objective of this lesson is to provide students with both a conceptual and an operational definition of cooperative, competitive, and individualistic learning situations.
2. Randomly assign students to groups of three.
3. Conduct a competitive learning experience by doing the following.
    a. State that the members of each triad are to compete to see who is best in identifying how many squares are in a certain geometric figure. The criteria for winning is simply to identify more correct squares than the other two triad members. Ask the students to turn their "squares figure" right side up, and tell them to begin.
    b. At the end of three or four minutes instruct the students to stop. Then ask them to determine who is the winner of each triad, ask the winners to stand, and then have everyone applaud.
    c. Tell students to turn away from the triad and, working by themselves, write down (a) how did they feel during the competition and (b) what did they notice during the competition. Give students another three or four minutes to do this.
4. Conduct an individualistic learning experience by doing the following.
    a. State that students are to work individualistically to find as many two-sided figures in a geometric figure as they can. All students who find 95 percent of the biangles will receive an "A," all those who find 90 percent will receive a "B," and all those who find only 85 percent will receive a "C." Tell the students to turn their "biangles figure" right side up and begin.

4. b. At the end of three or four minutes ask the participants to stop. Then announce that there are ten biangles in the figure. Ask the students to work by themselves to answer the questions: (a) how did you feel and (b) what did you notice. Give participants another three or four minutes to do so.

5. Conduct a cooperative learning experience by doing the following:
   a. State that students are to reform their triads and work as a group to identify as many triangles within a geometric figure as they can, making sure that all members of their triad can correctly identify all triangels. The members of each triad should sign the group's paper when they are finished to note their agreement with the group's answer. All members of the groups finding 95 percent of the triangles will receive an "A," all members of the groups finding 90 percent of the triangles will receive a "B," and all members of the groups finding 85 percent of the triangles will receive a "C." Tell the students to turn their "triangles figure" right side up and begin.
   b. At the end of eight or nine minutes tell the students to stop. Inform them that there are 18 triangles in the figure. Then ask them to turn away from their triad and working by themselves write down: (a) how they feel and (b) what did they notice during the cooperative instruction. Give students three or four minutes to do this.

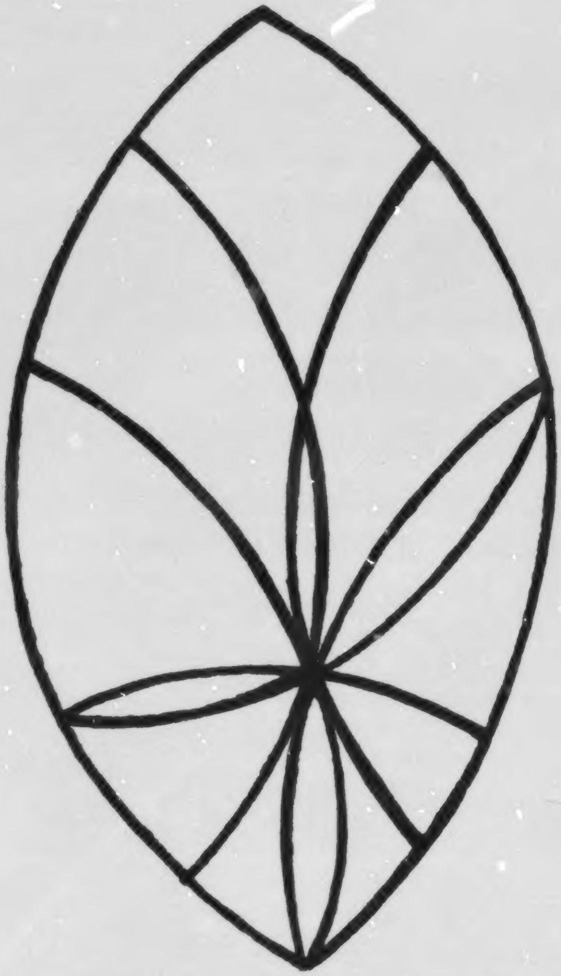
6. Instruct the students to share their reactions to the three types of learning situations with the other members of their triad. Give them around ten or twelve minutes to do so. Then sample the reactions of the triad in a whole class discussion of the students' reactions. Ask the students to make conclusions concerning the classes reactions to the three instructional experiences.

7. Review with the entire class the conceptual definitions of the three goal structures. Then add the following operational definitions:
    a. Competitive: set an individual goal (to do better than the other students), use a norm-referenced evaluation system, and reward winners.
    b. Individualistic: set an individual goal (to do as well as one can), use a criteria-referenced evaluation system, and reward each student on the basis of how his or her performance compares to the preset criteria of excellence.
    c. Cooperative: set a group goal (for all group members to master the material at as high a level as possible), use a criteria-referenced evaluation system, and reward each student on the basis of how his or her group's perfotmance compares to the preset criteria of excellence.
8. Discuss with the entire class:
    a. What student-student interaction patterns were present in each type of learning situation?
    b. What cognitive and affective outcomes resulted from the interaction patterns?



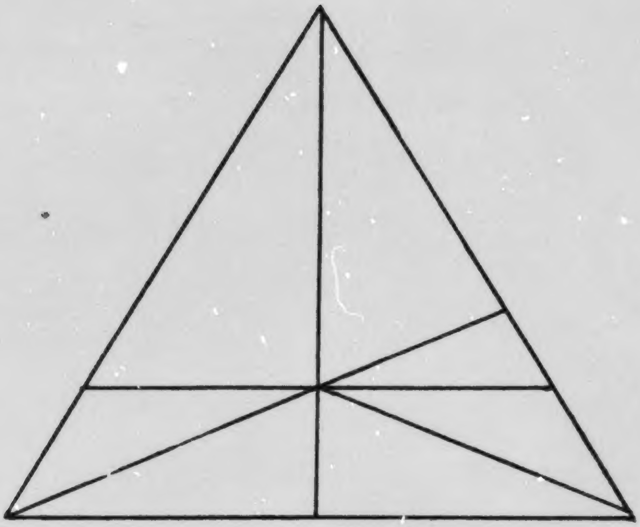
How did I feel?

What did I notice?



How did I feel?

What did I notice?



How did I feel?

What did I notice?

Conceptual Definitions of Cooperative, Competitive, and Individualistic Learning Situations

The basic premise of this unit is that the way in which teachers structure student learning goals determines how students interact with each other, and that the student-student interaction patterns largely determine the cognitive and affective outcomes of instruction. In every lesson, the teacher structures the way in which students interact with each other as they pursue their learning goals. Teachers may structure student learning goals so that students are in a win-lose struggle to see who is best (competition or negative goal interdependence), so that students work individualistically on their own independent from their peers (individualistic or no goal interdependence), or so that students work in pairs or small groups to complete the assignments and help each other master the assigned material (cooperation or positive goal interdependence). It is the student-student interaction patterns promoted by the three goal structure instructional outcomes. The purpose of this session is to provide clear operational and conceptual definitions of the three goal structures.

Competition among students is created by a negative goal interdependence where students perceive that they can obtain their learning goals if and only if the other students with whom they are competitively linked fail to achieve their goals. To structure competition a teacher sets individual goals, uses a norm-referenced evaluation system, and rewards winners. Students are instructed to try to work faster and more accurately than their classmates, are placed in rank-order in terms of their achievement, and the winners are rewarded. Competition pits students against each other so that everytime one student studies hard, the other students may suffer through lower grades.

Individualistic work by students is created by structuring no goal interdependence where students perceive that the achievement of their learning goals is unrelated to, and independent from, the goal achievement of other students. Students are instructed to work on their own, with their own set of materials and at their own pace, without interacting with the other students, and striving to reach a preset critieria of excellence. If one student masters the assigned material it has no effect whatsoever on the learning of other students. In other words, to structure a learning situation individualistically, a teacher sets individual goals, uses a criteria-referenced evaluation system, and rewards students on the basis of how their work compares with the preset criteria of excellence.

Cooperation among students is created by a positive goal interdependence among students where each student perceives that he or she can obtain his or learning goal if and only if the other students with whom he or she is cooperatively linked achieve their learning goals. To structure a learning situation cooperatively, a teacher sets group goals, uses a criteria-referenced evaluation system, and rewards students on the basis of how their group product compares with the preset criteria of excellence. Cooperation places students within a peer support system so that everytime one student studies hard, the other students will benefit through higher grades.

Recent tradition in schools encourages interpersonal competition in which students are expected to outperform their peers. When a child enters school, there is great concern whether his or her performance is equal to or better than that of other children in the class. To know more than others is taken as a sign that one is better, more intelligent, superior, and a better person; and being more knowledgeable is prized. Constantly encouraging students to outperform their peers has had considerable socializing effect, as indicated by the facts that American children are more competitive than are children from other countries and become more competitive the longer they are in school or the older they become (Johnson & Johnson, 1975, 1978). Not only do most students perceive school as a competitive enterprise, but researchers have found that American students so seldom cooperate spontaneously that it appears that the environment provided for students is barren of experiences that would sensitize them to the possibility of cooperation.

Individualistic instruction, where students work alone with their own set of materials toward their own learning goals, has been presented as an alternative to competition and implemented widely in the past ten or twelve years. Yet it seems to contribute to student loneliness and alienation and to have an adverse effect on socialization and healthy social and cognitive development.

Although clustering students together to work on an assignment is not uncommon, cooperation, where students see themselves in a "sink or swim together" relationship, is the least used of the three goal structures. Cooperation is not having students sit close together, each doing their own work but talking with one another. Nor is cooperation a situation where one student does all the work for the group while three others go along for a free ride. Cooperation is not having students share materials or equipment before they take a competitive test. Cooperative interdependence means that the students perceive their success to be dependent on the efforts of all the members of their group so that their group product is evaluated against a preset criteria of excellence and all members of the group must master the assigned material.

In the ideal classroom all three goal structures are used in an integrated way. All students learn to work cooperatively with their peers, to compete for fun and enjoyment, and to work autonomously on their own. Most of the time, however, students would work cooperatively on instructional tasks, as it is cooperation that is most facilitative of several desired instructional outcomes.

Group Discussion

1. Instruct students to form into groups of four.
2. Students are to develop a set of conclusions from their experiencing the three goal structures, their reading, the lecture, and their past experiences with cooperative, competitive, and individualistic learning. There should be one list of conclusions from the group, all members must agree with the conclusions, and each member must be able to describe the group's rationale for the conclusion.
3. Sample the conclusions found by small groups, perhaps by having each group state their first one or two conclusions.

Summary

It is now somewhat clear as the the nature of cooperative learning experiences and how they differ from competitive and individualistic ones. In the next session the relationship between cooperative learning and successful mainstreaming (as well as ethnic integration) will be discussed. We will then focus on how a teacher structures a cooperative learning experience.

Session 2:

What is the relationship between student-student interaction patterns and mainstreaming handicapped students into regular classrooms?

Objectives

1. Provide students with the rationale for carefully structuring the interactions between handicapped and nonhandicapped students cooperatively.
2. Require students to speculate as to what the specific, collaborative roles of the regular teacher, the special education teacher and the principal are in structuring effective mainstreaming.

Reading Assignment

1. Johnson, R. T. and D. W. Johnson, The Social Integration of Handicapped Students into the Mainstream. In M. Reynolds (Ed.), Social Environment of the Schools. Reston Virginia: Council for Exceptional Children, 1980, 9-38. Reprint in Appendix B.

Introduction

Session 1 dealt with the definitions of the student-student interaction patterns: Cooperative, Competitive and Individualistic learning. This session deals with the mainstreaming of handicapped students into the regular classroom setting and the kind of interaction between students and between school staff which promotes successful mainstreaming.

Student Pretest

1. Randomly place students in pairs.
2. Give the pretest, instructing students to:
    a. Discuss each question as a pair.
    b. Arrive at one answer to each question.
    c. Make sure both members of the pair agree on each answer and understand the rationale behind the answer.
3. Have the pairs combine into groups of four and repeat the procedure, deciding on one answer for each question for the group of four, and making sure that all members of the group agree on the answers.

Circle the letter of the most correct answer.

1. Mainstreaming refers to:
    a. The preparation of an Individualized Educational Plan for each handicapped student.
    b. Effective communication between school staff and parents of handicapped students.
    c. A careful plan for when handicapped students should be in the regular classroom setting.
    d. Giving handicapped students access to and constructive interaction with their nonhandicapped peers.
    e. All of the above.
2. Handicapped students being mainstreamed are better off:
    a. Under individualistic conditions.

2. (continued)

   b. Under cooperative conditions.

   c. Under competitive conditions.

   d. None of the above.

3. The most important aspect of mainstreaming is to:

   a. Maximize the achievement of handicapped students.

   b. End the labeling and classifying of students.

   c. Integrate handicapped students into constructive relationships with nonhandicapped peers.

   d. Force parent involvement in the education of handicapped students through the use of the I.E.P.

Mainstreaming and Cooperative Grouping

Mainstreaming begins when a handicapped student walks into the regular classroom and faces his or her new classmates for the first time. While the handicapped child may feel apprehensive and afraid, the nonhandicapped children may be experiencing discomfort and uncertainty. There is strain on both sides and no guarantee that the students will feel any more comfortable with each other as time passes. Mainstreaming carries the risk of making relationships between handicapped and nonhandicapped students worse as well as better. It is the way in which the teacher structures student-student interaction during instruction that makes the difference.

If the inclusion of handicapped students in mainstream classrooms is to provide constructive experiences for them, their nonhandicapped peers, and the classroom teachers, then teachers need to understand the effects of student to student interaction on students' acceptance of differences and their appreciation of heterogeneity. The following session is designed so that you have a clear understanding of the relationship between appropriate student/student interaction and mainstreaming, and also have a session which could be included in relevant courses that you teach or have influence over. The session deals with some perceptions that reflect the research around student-student interaction and mainstreaming interspersed with suggested triads for students to become involved with the concepts. It should be noted that the theme of the session deals with building a classroom climate for acceptance of differences and is relevant to integrating students with different ethnic backgrounds, males and females, and isolated students into the mainstream as well as the integration of handicapped students. The session begins with a brief definition of mainstreaming which is followed by a series of perceptions that reflect the research around student-student interaction and mainstreaming. Interspersed are a couple of discussion exercises designed to use with students: the first encouraging students to provide themselves with a real image of a handicapped student to focus on during the session and the second asking students to deliberate on the roles of the special education teacher, the regular education teacher and the school principal as they collaborate to affect appropriate mainstreaming strategies.

There is a short monograph in Appendix B which gives background theory, some data and some explanation to the perceptions summarized in the session. This material could effectively be used as homework reading for the student or background reading for you in presenting the session. The following material is designed for use as lecture and discussion.

What Is Mainstreaming?

For mainstreaming to be effective, what mainstreaming is needs to be understood. Although the goals established for handicapped children in mainstream environments encompass both academic and social/personal objectives, mainstream placements are successful only to the extent that handicapped students are integrated into constructive relationships with nonhandicapped peers. Mainstreaming may be defined as the provision of an appropriate educational opportunity for all handicapped students in the lease restrictive environment, based on individualized educational plans, with procedural safeguards and parent involvement, and aimed at providing handicapped students with access to and constructive interactions with non-handicapped peers.

While all parts of the mainstreaming definition are important, the bottom line of the mainstreaming concept deals with constructive interaction between handicapped and nonhandicapped students.

What Is the Value in Mainstreaming?

For some years now, more and more students have been labeled handicapped, removed from regular classrooms for more and more reasons and placed in special classrooms for special help. Concern for these students who were growing up outside of their peer group grew until a law was passed encouraging mainstreaming the students back into the regular classroom where feasible. Why is there concern for students learning in special classes?

One of the more important reasons is the recognition of the importance for handicapped students of relationships with nonhandicapped peers. It is nonhandicapped peers who provide handicapped children and adolescents with entry into the normal life experiences of their age groups, such as being invited to birthday parties, going to dances, taking buses, going to movies, shopping, knowing what to wear, what words are "in", what songs are popular and dating. Experiences with a variety of peers is not a superficial luxury to be enjoyed by some students and not by others. Constructive peer relationships are not only an absolute necessity for maximal achievement and healthy social and cognitive development but, also they may be the primary relationships within which development and socialization take place. Handicapped students especially need access to highly motivated and appropriately behaving peers.

On the other hand, nonhandicapped students can obtain many important life experiences through building and maintaining relationships with handicapped peers (Johnson & Johnson, 1980). In our research, for example, we have found that when nonhandicapped students collaborate with handicapped peers on instructional tasks, the result is increased empathy, altruism, and ability to view situations from a variety of perspectives. Mainstreaming is not something you do for a few students with handicaps but, rather, something you do for all students. The instructional procedures needed for mainstreaming also benefit the shy student sitting in the back of the classroom, the overaggressive student who seeks acceptance through negative behaviors, the bright but socially inept student, and the average student who does his or her work and often escapes the notice of the teacher. All students need to be integrated into the classroom life with each other and even the most well-adjusted and hard-working students benefit from mainstreaming when it is conducted with competence. Mainstreaming is a current, good reason to build a classroom atmosphere which encourages acceptance of differences and highlights the positive potential of heterogeneous interactions for students.

How Do Handicapped and Nonhandicapped Students Interact?

The central question in mainstreaming deals with the kind of interactions which develop between handicapped and nonhandicapped students after mainstreaming occurs. At this point in the session it would be helpful to think about a real student so that a "reality referent" is established. One way of doing this is to set up a short discussion with the use of the "focus trio":

1) Divide the participants up into groups of three preferably in a

way to generate random groups such as counting off.

2) Explain that in the trios each person will have two minutes to describe for the group a student they went to school with or that they have taught who had a handicap or a stigmatized difference of some kind, and their perception of how the other students interacted with that person.

3) The rules for a focus trio are that the focus remains with one person for the two minutes with the other triad members able to ask clarifying questions but not allowed to take the focus away by using such phrases as "That reminds me of the time I..." or "That student sounds like one I taught who..."

At the end of about six minutes of discussion, each participant will have three examples of students that were in need of mainstraming, their own and the examples provided by the other members of their triad. You may want to ask for one or two students to share their examples with everyone to further focus the group.

Mainstreaming begins with placing handicapped and nonhandicapped students in the same classroom. Placing students in physical proximity with each other does not mean, however, that the needed supportive and accepting relationships will develop. Contact is a necessary condition for integrating handicapped and nonhandicapped students into constructive relationships, but it is not a sufficient condition. Physical proximity of handicapped and nonhandicapped students can result in increased prejudice, stereotyping, and rejecting, or it can result in accepting, supportive, and caring relationships (Johnson & Johnson, 1980). Which of these alternatives occurs depends on how teachers structure student-student interactions.

At this point, it may be necessary to review the definitions of the three different goal structures. One way of doing this and getting some participant involvement is to have the triads formed earlier in the session review the definitions with each other from their notes and turn in as a group a brief two sentence definition for each goal structure that each group member could agree with and explain if called upon to do so. If time allows, it would also be effective to have the trios ponder the effects of each goal on the mainstreamed, handicapped student. An alternative to the triad is to briefly review the definitions yourself using the following material.

In a cooperative learning situation, the teacher established a group goal and a criterion-referenced evaluation system, then group members are rewarded on the basis of their group performance. Thus, a teacher may assign students to small groups (each containing at least one handicapped student), give them a set of math problems to solve, instruct them to reach agreement as a group on the correct answer for each problem and to make sure that every group member can solve every problem and detail the criteria of excellence which will be used to evaluate the group's work.

In a competitive learning situation the teacher established an individual goal and a norm-referenced evaluation system, then students are rewarded on the basis of how their work compares with the work of their classmates. Thus, a teacher gives students a set of math problems to solve, instructs them to try to outperform their classmates by solving more problems quicker, and rewards the winning students.

In an individualistic learning situation the teacher establishes an individual goal, a criterion-referenced evaluation system, and rewards students strictly on the basis of their individual performances. Thus, a teacher may give each student a set of math problems, instruct students to work alone without bothering other students and to complete as many problems as they can, and detail the criteria of excellence used to evaluate each student's independent work.

Each of these interaction patterns not only promotes different kinds of interactions between students, but each has a very different effect on acceptance of differences and mainstreaming (Johnson & Johnson, 1980). Cooperative learning experiences, compared with competitive and individualistic ones, result in more positive student-student relationships which are characterized by mutual liking, positive attitudes toward one another, mutual concern, friendships, attentiveness, mutual feelings of obligation, support and acceptance, and desire to win each other's respect. These findings hold regardless of the ethnic, social class, and ability characteristics of students. Furthermore, cooperative learning experiences promote more positive attitudes toward teachers, principals, and other school personnel than do competitive and individualistic attitudes.

Cooperative learning experiences promote the greater valuing of diversity among peers than do competitive and individualistic learning experiences. The valuing of diversity depends on interactions occurring within a cooperative context, students facilitating each other's achievement, and students feeling supported and accepted. Interactions like these lead to differentiated, tentative, and realistic views of other students, liking for other students, and expectations for enjoyable and rewarding interactions with them. In contrast, competitive and individualistic situations promote either obstructing or ignoring the efforts of classmates to achieve goals and, therefore, lead to simplistic, fixed, and stereotyped views of classmates, dislike or rejection, and expectations for distasteful and unpleasant interactions.

In essence, cooperation is the only way of structuring instruction that is consistent with the intent of mainstreaming. It does not make sense to mainstream handicapped students into the regular classroom and then have them compete with the other students. That does not tend to build acceptance of differences, but is more likely to produce increased stereotyping and discrimination. It is equally foolish to mainstream handicapped students into the regular classroom and have them work individualistically, where they can be seen by nonhandicapped students, but never integrated. This often creates the "zoo effect" of "see the handicapped kid" or equally bad, handicapped students may be ignored or treated with the paternalistic care one reserves for a pet. The dynamics of the heterogeneous, cooperative groups not only provides constructive interaction between students, but more importantly provides a positive situation for students to go beyond stigmatized differences and form more complete impressions of who each other are. It is getting beyond the handicap to the person that is vital to successful mainstreaming. It is not unusual in our research, when we ask for sociometric choices in cooperative settings, to find that low-achieving, learning disabled students are selected as often as bright students as group members. When we ask students about their choices, they often respond that they know the selected student is not very good in math, or other subject matter, "but he has a nice sense of humor," or "she watches the clock and keeps us on time," or "he has a gerbil at home and so do I." The students, given the chance, tend to go beyond the ability that the school values so highly to who the students are as people. It is cooperation that promotes the supportive, accepting, and caring relationships that are the essence of successful mainstreaming.

It needs to be noted that there is nothing "magical" about cooperative interaction. The research on acceptance of differences and other learning outcomes summarized in Session 4 is predominantly comparative and only says that cooperation is a better alternative than competition or learning individualistically. Integration of handicapped students into the mainstream, and cooperative groups themselves, take some time to have effect, and in the case of some students may take a considerable amount of time. However, structuring students to work in heterogeneous, cooperative learning groups is the teacher's "best shot" at building an effective setting for mainstreaming, and should be a part of every handicapped student's Individualized Educational Plan.

Two other points which are important to consider concern the extent to which cooperative groups should be used and their effects on other learning outcomes besides acceptance of differences. As will be dealt with in Session 4, cooperative learning has powerful effects on a variety of learning outcomes and benefits not only mainstreaming, but benefits all students in a classroom in a number of ways. Cooperative learning is not something special that is done for a few handicapped students, it is something special that is done for all students and a total classroom climate. Also, in spite of the research support for cooperative learning, the writers believe a fully functioning classroom is one where all three interaction patterns are used with some appropriate (and carefully structured) competition so students can learn how to compete and enjoy it, win or lose, and some appropriate individualistic learning so students can learn how to take responsibility for their learning. But the writers feel there should be a predominance of cooperative learning so that students can benefit from the power of investing themselves in each other's learning and so that students are integrated into the classroom life regardless of their differences.

The next two sessions provide information on how to carefully structure cooperative learning groups and teach collaborative skills. It is important to stress the differences between just having students work "in groups" and carefully structuring "cooperative groups". A cooperative group will always have positive goal interdependence where students may not like each other initially, but are required by the structure to take an interest in each other's learning on the cooperative task. This "sink or swim together" structure is what promotes the helping and facilitating behaviors which result in students learning to like one another. On the other hand, as described in Session 1, a cooperative group is not one where one person does all the work and three others say, "I'll sign anything!". A cooperative learning group requires each student to know the material to the best of his or her ability. There is individual accountability as a part of the positive goal interdependence.

Interpersonal and group skills multiply the power of heterogeneous, cooperative groups. It takes a number of social skills to exchange information, perceive the value of diverse resources, and use the full potential of each group member. It is not the availability of resources that most influences achievement and other instructional outcomes in a small group but the process of information exchange. Students need to be trained to attempt, actively and nonevaluatively, to understand the perspectives and information of other group members and to apply such resources in completing assignments. Session 5 will deal with the teaching of cooperative skills.

What About Teacher-Teacher Interaction?

Cooperative interaction will produce for teachers the same outcomes for teachers that it produces for students. A considerable amount of data on adult learning indicate that adults are more productive, like each other better, and generally feel more positive about their environment when they work collaboratively (see Session 4). In order for mainstreaming to be as successful as it can be, classroom teachers, special education teachers and principals are going to have to work together effectively.

> A useful discussion can be structured at this point between the participants by assigning each person in the triads a perspective: one to think about mainstreaming from the regular classroom teacher perspective; one to approach mainstreaming from the special education teacher's perspective; and the third to bring to the discussion the perspective of the school administrator. Assign these roles to the triads and ask them to deal with the following questions:
>
> What do you think about the material presented in this session on mainstreaming from your perspective?
>
> What kinds of things could each of you do to provide the necessary resources to ensure that heterogeneous, cooperative learning groups were successfully used to appropriately mainstream handicapped students into the regular classroom setting? What is the role each

of you would play?

It would be advantageous to have a representative of each of these roles in the room, if not in each group, so that the perceptions of the participants could be tested by an actual regular classroom teacher, and actual special education teacher, and an actual school administrator.

The following material on the roles of regular and special education teachers and the school administrator could be used after discussion or handed out to participants as homework reading. The major point on collaboration of school staff is that regular classroom teachers do not need to become experts in special education or the law (P.L. 94-192). They have knowledgeable people within easy reach, the special education teachers. It is equally certain that any teaming in a school cannot exist for long or be effective without the support and resources of the school administrator. Mainstreaming is greatly enhanced when collaboration exists between school staff as well as between students in the classroom.

Initial contact between the regular classroom teacher and the special education teacher may begin at the meeting in which the IEP's for individual handicapped students are written. It is within this meeting that the initial goal interdependence linking the regular and special education teacher is formed and cooperative roles begin to be developed. It is essential that both teachers recognize the positive goal and resource interdependence that exists as they strive with difference backgrounds for the same learning goals for these students. Depending on the effectiveness of the mainstreaming plan, they "sink or swim together". Some aspects of the regular classroom teacher's role might be:

(a) Primarily to structure learning experiences cooperative, especially when mainstreamed, handicapped students are present in the regular classroom setting. Make sure that the small groups are heterogeneous, with handicapped and nonhandicapped students in the same group.

(b) Specify student roles within the cooperative groups with special care in the selection of the initial role for the handicapped student. Many students being mainstreamed will be fearful and anxious about interacting with nonhandicapped peers. Clear and structured responsibilities within the small groups will alleviate such feeling (i.e. recorder, summarizer, checker, etc.).

(c) To teach nonhandicapped and handicapped students the skills of helping, tutoring, checking, and encouraging.

(d) To make expectations of handicapped students reasonable. It may be necessary to alter the amount of material or to change the criteria, or give different problems or work lists, or in another way alter the tasks to ensure a reasonable expectation for the handicapped student, this is essential to the success of the group as it does not build self confidence or group support to assign impossible tasks. The special education teacher is an important resource on this question.

(e) Support the collaborative relationships among the students and the positive feeling shared by all students as they successfully work in cooperative groups.

(f) Establish a collaborative working relationship with the special education teacher who is also working with the mainstreamed student(s), and obtain the support of the principal for the model.

Some aspects of the special education teacher's role might be:

(a) Train all students in the social skills (e.g., leadership and communication) they need to function effectively as part of a cooperative leraning group.

(b) Give special tutoring to collaborating pairs of students (one handicapped and one nonhandicapped) in how to function effectively in their cooperative learning group and to help each other to learn more and behave appropriately.

(c) Provide the regular classroom teacher with guidelines on how much each mainstreamed student can realistically achieve so that group scores can be adjusted to encourage maximal achievement and to avoid penalizing nonhandicapped students.

(d) Be available for unforeseen problems in building (and maintaining) accepting and supportive relationships between handicapped and nonhandicapped students.

(e) To join with the regular education teachers and to celebrate the successes, solve the problems and appreciate each others' efforts to promote more positive and supportive relationships among students.

Administrative support is necessary for the successful collaboration of teachers and for the use of cooperative learning procedures to mainstream handicapped students into regular classrooms. It is the principal who can encourage and reward teachers for working collaboratively. It is the principal who can make schedule changes so that two teachers can observe each other, co-teach a lesson, and provide in-classroom help and assistance to each other. The principal can schedule two teachers' preparation periods so that they can plan and evaluate together.

The principal needs (a) to understand the need for and the dynamics of heterogeneous cooperative learning groups, and (b) to help plan for effective collaboration between regular and special education teachers. Teachers must be able to involve principals in their plans so that the needed administrative support is provided. In addition, principals need to follow a number of rules to promote the use of cooperative learning procedures and the collaboration of teachers.

Summary

The central purpose of mainstreaming is to integrate handicapped students into constructive relationships with nonhandicapped peers. Teachers provide considerable classroom assistance to handicapped students, but it is primarily through interactions with peers that handicapped students learn and develop socially and cognitively. At the same time, the interactions provide important developmental experiences for nonhandicapped students. Not all peer relationships are constructive, however, and the interactions between handicapped and nonhandicapped students can go either way. To be constructive, these interactions must be characterized by acceptance, support, and caring. Only the cooperative interaction pattern provides a context that requires these kinds of interactions. It does not make sense to mainstream handicapped students into classrooms dominated by competition, acceptance of differences is not encouraged in a competitive environment. It is equally inappropriate to mainstream students into classrooms where there is extensive individualistic work and little or no interaction between students. It is crucial to note that structuring learning cooperatively is not something done for the handicapped students, it is beneficial to all students. Cooperative instruction is based on a set of practical strategies which any teacher can master. It does not require the classroom teacher to become an "expert" in special education. It provides a natural way for regular and special education teachers to work together as a team.

Session 3: How Are Cooperative Learning Activities Structured?

Objectives

1. To define both operationally and conceptually the procedures for structuring a learning situation cooperatively.
2. To review the definition of a cooperative learning experience.

Reading Assignment

1. Learning together and alone. Chapters 4, 5, and 7.
2. Johnson, D. W., & Johnson, R. Cooperative learning: The power of positive goal interdependence. In L. Lyons (Ed.), Structuring cooperative learning: The 1980 handbook. New Brighton, Minnesota: J & J Book Company, 1980.

Introduction

In the previous session we learned that cooperation is much more than being physically near other students, discussing material with other students, helping other students, or sharing materials with other students, although each of these is important in cooperative learning. The essense of cooperative learning is assigning a group goal, ensuring individual accountability, and rewarding group members on the basis of how their group efforts compare to a preset criteria of excellence. But teaching a cooperative lesson involves more than just setting up a cooperative goal structure. In this session we shall first experience a cooperative lesson to provide a concrete reality referent that is shared by all members of the class, and then we shall describe the specific, step-by-step procedure for teaching a cooperative lesson.

Operational Definition of Teacher's Role

In order to provide students with a personal and concrete understanding of the teacher's role in conducting cooperative learning activities, the following lesson may be conducted.

1. The objective of this lesson is to provide students with both a conceptual and an operational definition of the instructional procedures for conducting cooperative learning activities.
2. Randomly assign students to groups of six.
3. Distribute the following materials to each group:
   a. Six copies of the observation sheet.
   b. Six copies of the Winter Survival Situation Sheet.
   c. One packet of Winter Surival Cards (15 in all).
4. Ask one member from each group to volunteer to be an observer. Explain how to use the observation sheet to the entire class. The observer is not to participate in the group discussion. The observer role is to note the interaction among group members and give a report to the group after the task is completed.
5. Explain the task by stating that the group is to rank the 15 items in the order of their importance to the survival of the group. Explain the goal structure by stating that each group is to decide on one ranking, everyone is the group must agree with the ranking, and all group members must be able to explain the rationale behind the ranking. Explain the criteria for success by stating that a score between 0 and 35 means that the group has done an excellent job and all members will survive in style; a score of 36 to 50 means that all members will survive but with severe frostbite; a score of 51-65 means that only two of the

5. (continued) group members survive; and a score of 66 and above means that all group members perished. (Scoring is done by summing the absolute differences between the group's ranking and the expert's ranking.) Explain that the expected pattern of student-student interaction is that all students are expected to share their ideas, encourage others to share their ideas, listen carefully to the reasons given by fellow group members as to why an item should be ranked high or low, and argue for their point of view without changing their minds unless logically persuaded to do so.
6. Instruct the groups to deal out the cards until each member has three items (the observer does not get any). Set the scene by stating that the group has just crash landed in Northern Minnesota or Southern Manitoba and need to work out a plan for survival. Tell the groups to begin work.
7. This winter survival lesson is taken from the group skills book, *Joining together: Group theory and group skills* (Prentice-Hall, Inc., 1975) by David W. Johnson and Frank Johnson. More detailed instructions are found in that book.
8. Move around the room and assist the observers in getting started. Systematically observe each group for a few minutes.
9. After about 40 minutes give students a 5 minute warning. Then ask each group to stop work. Share the expert's ranking and explain how to score their ranking (see *Joining together* for the rationale for the expert's ranking).
10. Ask each group to discuss the question, "How well did we work as a cooperative group?" They are to use the data gathered by the observer as a major (but not the only) resource for this discussion. You may wish to give a few of your observers to the entire class.

WINTER SURVIVAL EXERCISE: THE SITUATION

You have just crash-landed in the woods of Northern Minnesota and Southern Manitoba. It is 11:32 a.m. in mid-January. The light plane in which you were travelling has completely burned except for the frame. The pilot and copilot have been killed, but no one else is seriously injured.

The crash came suddenly before the pilot had time to radio for help or inform anyone of your position. Since your pilot was trying to avoid a storm you know the plane was considerably off course. The pilot announced shortly before the crash that you were 80 miles northwest of a small town that is the nearest known habitation.

You are in a wilderness area made up of thick woods broken by many lakes and rivers. The last weather report indicated that the temperature would reach minus twenty-five degrees in the daytime and minus forty at night. You are dressed in winter clothing appropriate for city wear — suits, pantsuits, street shoes, and overcoats.

While escaping from the plane your group salvaged the fifteen items listed on the next page. Your task is to rank these items according to their importance to your survival.

You may assume that the number is the same as the number in your group and that the group has agreed to stick together.

Reprinted from: Johnson, D. W. & Johnson, F. P. Joining together: Group theory and group skills. Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1975.

Observation Sheet

1. Contributes Ideas					
2. Describes Feelings					
3. Paraphrases					
4. Expresses Support, Acceptance					
5. Expresses Warmth, Liking					
6. Encourages Others To Contribute					
7. Summarizes					
8. Coordinates Members' Efforts					
9. Relieves Tension By Joking					
10. Gives Direction To Group's Work					

Trusting = 1, 2; Trustworthy-Acceptance = 3, 4, 5; Trustworthy Reciprocation = 1, 2

Leadership-Task = 1, 2, 7, 8, 10; Leadership-Maintenance = 3, 4, 5, 6, 9

Communication = 1, 2, 3 (and technically, all the rest)

Directions for use:

A. Put names of group members above each column.

B. Put a tally mark in the appropriate box each time a group member contributes.

C. Make notes on the back when interesting things happen which are not captured by the categories.

D. It is a good idea to collect one (or more) good things that each group member does during the exercize.

Put the following items on cards so that each group can have a set of fifteen cards which represent the items saved from the airplane.

Compress Kit (with 28 feet of gause)

Ball of steel wool

Cigarette lighter (without fluid)

Loaded .45-Caliber pistol

Newspaper (one per person)

Compass

Two ski poles

Knife

Sectional air map made of plastic

30 feet of rope

Family-size chocolate bar (one per person)

Flashlight with batteries

Quart of 85-proof whisky

Extra shirt and pants for each survivor

Can of shortening

11. Give a short lecture on the teaching procedures in conducting a cooperative lesson, using examples from the experience the students just went through.

Structuring Cooperative Learning

A brief summary of the teacher's role in cooperatively structured lessons is as follows.

1. As far as possible, specify the instructional objectives.
2. Select the group size most appropriate for the lesson. With young students the size of the group may need to be two or three members.

2. (continued) With older students larger groups are possible. The optimal size of a cooperative group will vary according to the resources needed to complete the lesson or project (the larger the group the greater the resources available), the cooperative skills of group members (the less skillful the group members, the smaller the group should be), and the nature of the task.
3. Assign students to groups. Usually, teachers will wish to maximize the heterogeneity in the group. Random assignment usually ensures a good mixture of males and females, highly verbal and passive students, leaders and followers, and enthusiastic and reluctant learners. And sometimes teachers may wish to group students around their interests. Teachers may often teachers may wish to assign students to groups so that students high, low, and average in past achievement are in the same group.
4. Arrange the classroom. Teachers will wish to cluster the groups of students so that they will not interfer with each other's learning. Within the groups students should be able to see the relevant materials, converse with each other, and exchange materials and ideas. Usually a circle is best, and long tables should be avoided.
5. Provide the appropriate materials. When students are first learning how to cooperate, or when some students are having problems in contributing to the group's work, teachers may wish to arrange the materials like a jig-saw puzzle and give each group member one piece. A group, for example, could be writing a report on Abe Lincoln, with each member having material on a different part of his life. In order for the report to be completed, all group members will have to contribute their material and ensure it is incorporated into the group's report.

6. Explain the task and the cooperative goal structure. The task may be the successful completion of an assignment in math, science, language arts, or social studies. To explain the cooperative goal structure teachers will need to communicate that there is a group goal, a criteria-referenced evaluation system, and all group members will be rewarded on the basis of the quality of the group's work.
7. Observe the student-student interaction. Just because the teacher asks students to cooperate with each other does not mean that they will always do so. Much of the teacher's time in cooperative learning situations is spent observing student groups to see what problems they are having in fucntioning cooperatively. For specific procedures for observing, and for specific observation instructions, see Johnson and R. Johnson (1975) and Johnson and F. Johnson (1975).
8. Intervene as a consultant to help the group solve its problems in working together effectively and to help group members learn the interpersonal and group skills necessary for cooperating. These skills are detailed in Johnson (1978, 1981) and in Johnson and F. Johnson (1975), along with activities to be used in teaching the skills.
9. Evaluate the group products, using a criteria-referenced evaluation system. Both individual and group data should be gathered in order for groups to know when to give help and assistance to individual members. The procedures for setting up and using such an evaluation system are given in Johnson and R. Johnson (1975).

Cooperative Learning and Social Skills

Generally, the longer students are in school and the older they become the more competitive they get and the greater the difficulty they have in interacting cooperatively with peers. In most cases, when teachers first place students in cooperatively learning groups the students will not be able to work together effectively. Social skills, like all other skills, need to be purposively taught. There are two options for teaching students the interpersonal and small group skills they need to work effectively in learning groups: adding additional classes that focus on interpersonal skills such as communication skills or integrating the skills into the procedures for learning academic subject matter such as math, science, social studies, and English. It is the latter approach that is emphasized by cooperatively learning activities. The specific interpersonal and group skills students need to function effectively in cooperative learning groups are detailed in Johnson (1978, 1981) and Johnson and F. Johnson (1975).

Group Discussion

1. Instruct students to form into groups of four.
2. Tell students to develop a set of conclusions as to what they have learned about structuring cooperative learning activities from their experiencing the lesson, their pretest experiences, their reading, the lecture, and their past experiences with cooperative learning. There should be one list of conclusions from each group with all members agreeing with the conclusions.
3. Sample the conclusions found by the groups, perhaps by having each group state their first one or two conclusions.

Summary

It is now somewhat clear ss the the nature of cooperative learning experiences and how they are structured. The next session will focus on students applying what they have learned to a specific lesson they plan to teach someday.

Session 4: Planning A Cooperatively Structured Lesson

Objectives

1. To ensure that students can competently plan a cooperatively structured lesson.
2. To review the teacher's role in structuring cooperative learning activities.

Reading Assignment

1. Learning together and alone. Chapters 8 and 9.
2. Selected lesson plans from:

   Chasnoff, R. (Ed.). Structuring cooperative learning: The 1979 handbook. New Brighton, Minn.: J & J Book Company, 1979.

   Lyons, V. (Ed.). Structuring cooperative learning: The 1980 handbook. New Brighton, Minn.: J & J Book Company, 1980.

Introduction

The last session focused on the procedures used to structure a learning situation cooperatively. The purpose of this session is to apply the material on the teacher's role by planning a lesson you plan to teach in the near future. The material in this session has a dual purpose. It can be used by you in planning cooperatively structured lessons related to this module and other material you are teaching, and it can be used with your students as a "translation" of the material from the previous session to a lesson they could teach.

Student Pretest

1. Randomly place students in pairs.
2. Give the pretest, instructing students to:
    a. Discuss each question as a pair.
    b. Arrive at one answer to each question.
    c. Make sure both members of the pair agree on each answer and understand the rationale behind the answer.
3. Have the pairs combine into groups of four and repeat the procedure, deciding on one answer for each question for the group of four, and making sure that all members of the group agree on the answers.

1. A group of students is assigned the task of investigating and evaluating several different methods of making sugar cookies. Each student studies one method and reports to the rest of the group. The group then conducts try-outs. Everyone has a great time taste-testing the products, discussing the relative merits of each, and examining what differences in methods produces different results. At the conclusion of the activity, each student writes a report on the experiment and is graded on the report. What, if anything, was inappropriate to the cooperative goal structure?
    a. Nothing was inappropriate.
    b. The division of labor.
    c. The sharing of information.
    d.* The method of evaluation.
    e. Eating the cookies in class.

2. The purpose of a goal structure is to:

   a. Make teaching easier.

   b. Help teachers establish good rapport with students.

   c. Create positive, negative, or no interdependence among students.

   d. Give students a variety of ways to learn.

Answer the following questions either true (T) or false (F).

_____3. Cooperative learning groups should have at least seven members.

_____4. The smaller the group, the less resources available within the group.

_____5. Cooperative learning groups should be as homogeneous as possible.

_____6. Within cooperative groups students should be somewhat far apart so that they do not interfer with each other's thinking.

_____7. Giving each student part of the materials needed to complete an assignment is a good way to promote cooperative interaction among students.

_____8. A teacher should observe the cooperative groups to make sure that they are in fact members are interacting appropriately.

_____9. Groups that are not functioning well should be ignored by the teacher.

Planning A Cooperative Lesson

1. Assign students to homogeneous groups of three or four members. Future first-grade teachers should be together, future junior-high social studies should be together, and so forth.
2. Distribute one copy of the "Teacher's Role in Cooperation" and "Cooperative Lesson Worksheet" to each student.
3. Instruct each group to select a lesson that one or more members will teach in the near future. The lesson should be routine, not an unusual or rarely taught lesson.
4. Instruct each group to make the four preinstructional decisions concerning group size, how students are to be assigned to groups, room arrangement, and the materials needed for each group.
5. Instruct each group to set the lesson. Emphasize positive goal interdependence and individual accountability.
6. Instruct each group to plan how monitoring and processing will take place during the lesson.
7. Instruct each group to try to anticipate what problems students will have working together effectively and what interventions the teacher may make to solve such problems.
8. Instruct each group to plan how to evaluate the achievement and group functioning of their students.
9. While the groups are working circulate throughout the room, observing each group for a period of time and gathering information about group functioning to be shared in the class discussion of their experience.
10. Ask each group to share part of its lesson plan with the entire class.

The Teacher's Role in Cooperation

Step 1. Select a lesson.

What about spelling?, a page of story problems?, editing a paragraph?, comprehension questions?, a science lab activity?

Step 2. Make decisions.

Select the group size.

This will vary according to the resources you need in the group, the skills of the students in working in groups, and the needs of the task. Experiment and find out what size works in your situation.

Assign students to groups.

Heterogeneous groups have the potential for the most power. Differences among group members make the group function.

Arrange the classroom.

Chairs and desks should be arranged in small cluster arrangements. Groups should be separated from each other as much as possible.

Provide the appropriate materials.

Each group can have a set of materials or each group member can have different materials which relate to the task.

Step 3. Set the lesson.

State, in language your students understand:

a. a clear and specific task statement,
b. the group goal (positive-interdependence),
c. the criteria for success as a group,
d. specific behaviors expected, (i.e., everyone participating, staying in group, good listening skills).

Step 4. Monitor and process.

Be sure you always monitor. If appropriate, use other observers (students, other teachers) as well. Be sure to clarify:

a. the way observers will know that a group member is evidencing an expected behavior,
b. who will observe, and the observation form that will be used,
c. the way data will be fed back to students.

Step 5. Intervene to solve problems and teach skills.

There will be problems. Stop the students and teach them the skills you see them needing. Turn problems back to the group to solve; act as a consultant.

Step 6. Evaluate outcomes.

Each student gets the grade their group received. Remember you are evaluating how well they learned the material or accomplished the task and how well they helped each other. It is also a good idea to make notes about students of special interest, and to suggest ways to improve the lesson next time.

Cooperative Lesson Worksheet

Grade Level: __________ Subject Area: __________

Step 1. Select a lesson: ______________________________

Step 2. Make Decisions.

a. Group size: ______________

b. Assignment to groups: ______________________________

c. Room arrangement: ______________________________

d. Materials needed for each group:

Step 3. Set the lesson. State, in language your students understand:

a. Task statement: ______________________________

b. Group goal: ______________________________

c. Criteria for success: ______________________________

d. Specific behaviors expected: ______________________________

Step 4. Monitor and Process

a. Evidence of expected behaviors (appropriate actions): __________

b. Observation form: ______________________________

Observer(s): ______________________________

c. Plans for processing (feedback): ______________________________

Group Discussion

1. Randomly assign students to groups of four.
2. Tell students to develop a set of conclusions as to what they have learned about structuring cooperative learning activities from their planning.
3. Sample the conclusions found by the groups, perhaps by having each group state their first one or two conclusions.

Summary

It is now (hopefully) clear as to the nature of cooperative learning experiences and how they may be structured. The next lesson will explore the research support for using cooperative learning activities in the classroom.

Session 5: What Is the Rationale for Structuring Learning Cooperatively?

Objectives

1. Provide students with the research evidence concerning the relationship between cooperatively structured learning and instructional outcomes.
2. Model a cooperative lesson utilizing a division of labor within the cooperative group.

Reading Assignment

1. Learning together and alone. Chapter 2 and Appendix A.
2. Johnson, D. W. Group processes: Influences of student-student interaction on school outcomes. In J. McMillan (Ed.), The social psychology of school learning. New York: Academic Press, 1980, 123-168.

Introduction

The way in which teachers structure student learning goals determines how students interact with each other. These interaction patterns largely determine the cognitive and affective outcomes of instruction. Each goal structure promotes a different pattern of interaction among students. Cooperation provides opportunities for encouraging and helping among students, competition promotes cautious and defensive student-student interaction, while in individualistic situations students work by themselves without interacting with other students. There are a number of instructional outcomes that are directly influenced by these student-student interaction patterns. The following lesson is both an example of how to conduct a cooperative lesson and a way for students to learn how the three goal structures affect student-student interaction patterns and instructional outcomes.

Student Pretest

1. Randomly place students in pairs.
2. Give the pretest, instructing students to:
   a. Discuss each question as a pair.
   b. Arrive at one answer to each question.
   c. Make sure both members of the pair agree on each answer and understand the rationale behind the answer.
3. Have the pairs combine into groups of four and repeat the procedure, deciding on one answer for each question for the group of four, and making sure that all members of the group agree on the answers.

Indicate whether the following interaction patterns are promoted primarily by cooperative (1), competitive (2), and individualistic (3) goal structures.

_____1. High interaction among students.
_____2. Misleading communication about the material being studied.
_____3. No interaction among students.
_____4. Low mutual influence among students.
_____5. High trust among students.
_____6. High sharing of materials and helping each other learn.
_____7. Obstruction of each other's efforts to learn.
_____8. High emotional involvement in the learning of the assigned material.
_____9. High divergent thinking and risk-taking thinking.
____10. "Win-lose" method of solving conflicts.
____11. High acceptance, personal support for learning, and liking among students.
____12. Low coordination of effort among students.
____13. High motivation to learn.
____14. Low exchange of information among students.

Instructional Outcomes Lesson

1. The objectives of this lesson are to demonstrate a cooperative lesson using a division of labor and to maximize students' mastery of the research literature on goal structures.
2. Randomly assign students to groups of six.
3. State that the group task is to complete one report on the relative effects of cooperative, competitive, and individualistic learning experiences on instructional outcomes. The group report will be evaluated on the basis of:

3. (continued) on the basis of:
   a. How well conceptualized and organized the report is (0 to 20 points).
   b. How well documented with research each major conclusion contained in the report is (0 to 20 points).
   c. How well written the report is (0 to 20 points).
   d. The extent to which the contributions of all group members are reflected in the report (0 to 20 points).
   e. The degree to which all group members have mastered all the material contained in the report (0 to 20 points).

   Members of groups who receive 80 points or more will receive an "A," members of groups who receive 70 to 79 points will receive a "B," and members of groups who receive 60 to 69 points will receive a "C."
4. State that the group's report is to be built through a division of labor that contains the following steps:
   a. Each student is assigned one of the following six topics:
      1. Achievement and exchange of information.
      2. Motivation to learn and emotional involvement in learning (attitudes toward learning and degree of desire to participate in the instructional experience).
      3. Perspective-taking and internal locus of control.
      4. Self-esteem and psychological health.
      5. Liking for other students and for school personnel.
      6. Feelings of being accepted and supported by peers and school personnel.

4. b. Each student is to find the relevant information in the readings, organize it, learn it, and teach it to the other members of his or her group.

   c. The group is to learn the material contributed by each member and integrate it all into one report.

5. Give the students time to work on the assignment in class. While the groups work unobtrusively observe for both deficits in both academic and cooperative skills. Give help where you think it is needed; respond to students' questions but, whenever feasible, turn the questions back to the group for the group to answer. Occasionally, randomly pick a student from the group to explain the information gathered by another member of the group. This is to remind students that all group members must master all the information contained in the report.

6. When a group has a problem in working together successfully, intervene to teach them the needed academic or cooperative skills.

7. Evaluate each report on how it compares to the criteria for excellence outlined above.

8. Conduct a class discussion of the relative impact of cooperative, competitive, and individualistic learning experiences on instructional outcomes. Have each group share its major conclusions and reservations about the research in a whole class discussion.

The Importance Of Cooperative Learning Experiences

The importance of cooperative learning experiences goes beyond improving instruction, increasing student achievement, and making life easier and more productive for teachers, although these are worthwhile activities. Cooperation is as basic to humans as the air we breath. The ability of all students to cooperate with other people is the keystone to building and maintaining stable families, career success,neighborhood and community membership, important values and beliefs, friendships, and contributions to society. Knowledge and skills are of no use if the student cannot apply them in cooperative interaction with other people. It does no good to train an engineer, secretary, accountant, teacher, or mechanic, if the person does not have the cooperative skills needed to apply the knowledge and technical skills in cooperative relationships on the job, in the family and community, and with friends. The most logical way to emphasize the use of cooperative skills in task situations is to structure the majority of academic learning situations cooperatively. Students can then learn technical knowledge and skills in a realistic setting by having to work cooperatively with their classmates. There is nothing more basic than learning to use one's knowledge in cooperative interaction with peers.

Summary

When teachers wish to promote positive interaction among students (characterized by peer acceptance, support, and liking; student-student exchange of information; motivation to learn; and emotional involvement in learning), a cooperative goal structure should be used and competitive and individualistic goal structures should be avoided. The emphasis on cooperative learning experiences not only will create the supportive, accepting, and caring relationships vital for socialization, it will also promote the achievement, perspective-taking ability, self-esteem, psychological health, liking for diverse and similar peers, and positive attitudes toward school personnel. There is a solid research base to support the emphasis on cooperative learning in mainstreaming situations and in classrooms where basic skills are being emphasized. This evidence makes the previous sessions on the nature of cooperative learning and how to structure cooperative learning situations all the more important. What is left for the next session to to put everything you (the students) have learned about cooperative learning.

Session 6: What Have We Learned?

Objectives

1. To integrate and summarize what students have learned about cooperative learning experiences in the previous five sessions.
2. To provide termination of the unit.

Reading Assignment

1. *Learning together and alone*. Chapters 8, 9, and 10.
2. Selected lesson plans from the *1979 and 1980 Handbooks on Structuring Cooperative Learning*.
3. Sapon-Shevin, M. Cooperative instructional games: Alternatives to the spelling bee. *Elementary School Journal*, 1978, *79*, 81-87.

Introduction

We have now explored the definition of a cooperative learning experience, the relationship between cooperative learning and successful mainstreaming, the procedures used to structure cooperative learning, and the research support underlying its use. It is now time to summarize what we have learned in and how we are reacting to the material in this unit.

Summarizing What We Have Learned

1. Assign students randomly to groups of five.
2. Assign students the following tasks:
    a. Summarize the major points they have learned about cooperative learning.
    b. Summarize the problems they see with their trying to use cooperative procedures in their future classrooms.
    c. Determine the extent to which each group member plans to use cooperative learning procedures in their future classrooms.
3. State that they tasks are cooperative. The groups are to reach their conclusions by consensus, ensuring that all group members contribute to the discussion.
3. Make a list of the major problems the students see in their implementation of cooperative learning procedures.
4. Ask each group to take one or two of the problems and build three solutions to each. The solutions are to be shared with the class as a whole.
5. Have the groups state what problems they choose to solve and the solutions they came up with.
6. Have the groups summarize what they have learned about cooperative learning procedures during this unit.

Bibliography

Aronson, E., Blaney, N., Stephan, C., Sikes, J., & Snapp, M. The jigsaw classroom. Beverly Hills, Calif.: Sage Publications, 1978.

Johnson, D. W. Educational psychology. Englewood Cliffs, N.J.: Prentice-Hall, 1979.

Johnson, D. W., & Johnson, R. Learning together and alone: cooperation competition, and individualization. Englewood Cliffs, N.J.: Prentice-Hall, 1975.

Johnson, D. W., & Johnson, R. (Eds.), Social interdependence in the classroom: cooperation, competition, and individualism. Journal of Research and Development in Education, 1978, 12(1), Fall Issue.

Sharan, S., & Sharan, Y. Small-group teaching. Englewood Cliffs, N.J.: Educational Technology Publications, 1976.

APPENDIX A

GROUP PROCESSES:
INFLUENCES OF STUDENT-STUDENT
INTERACTION ON SCHOOL OUTCOMES

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GROUP PROCESSES:

INFLUENCES OF STUDENT-STUDENT INTERACTION ON SCHOOL OUTCOMES

David W. Johnson

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chapter 4

Group Processes: Influences of Student–Student Interaction on School Outcomes

DAVID W. JOHNSON

INTRODUCTION: IMPORTANCE OF STUDENT–STUDENT RELATIONSHIPS

The classroom is first and foremost a scene of recurrent interpersonal interactions where a teacher and 30 or so students all interact with one another. Traditionally, educators and psychologists have viewed the interaction between the teacher and the student as the most important relationship for achieving the school's goals of subject matter mastery, socialization, and intellectual, social, and physical development. This view has been based on three assumptions. The first is that teaching and learning take place in a dyadic relationship between an adult and a child. Students' learning has been assumed to be primarily dependent on interaction with the teacher and, therefore, considerable research (as evidenced in Chapter 3) has focused on the teacher's (*a*) expectations of the student's ability to perform on academic tasks; (*b*) warmth, empathy, and democraticness in dealing with the student; (*c*) distribution of reinforcers to students for achievement and appropriate social behavior; and (*d*) feedback to the student concerning achievement and appropriate behavior. The second assumption has been that peer relationships in the classroom have little impact on the student and, therefore, should be ignored. And the third assumption has been that the infrequent and minor peer influences that do exist in the classroom are an unhealthy and bothersome influence on students' achievement, socialization, and development. Peer influences have been viewed as being in

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opposition to adult influences, aimed at discouraging academic achievement and encouraging off-task, disruptive behavior in the classroom.

Because of these three assumptions, student–student relationships have generally been suppressed in the classroom rather than constructively utilized. Most legitimate peer-group interaction in schools has been limited to extracurricular activities, which rarely deal with the basic issues of classroom life (McPartland, 1977). In many classrooms a system of instruction is used that emphasizes teacher lectures and students doing seatwork individually. Attempts by students to interact with each other are seen as off-task disruptiveness in such a system. Moreover, educators systematically fail to train students in the most basic social skills necessary for interacting effectively with peers, as they are not considered to be useful (Combs & Slaby, 1977). Without question, the dyadic, adult–child view of teaching and learning has lead to a deemphasis on student–student interaction and relationships in the classroom.

The assumption by psychologists that the most important relationships children form are with adults such as parents and teachers has so dominated that between the 1930s and the 1970s relatively few studies were conducted examining the impact of peer relationships on development and achievement. From both a psychoanalytic and Piagetian point of view, peer relationships were thought to be unimportant and, therefore, the study of children's early social behavior was directed toward child–parent interaction, especially child–mother relationships (Lewis & Rosenblum, 1975). Psychoanalytic theory emphasizes that children's early social experiences form the context for later social development and, therefore, that their social relationships are all greatly influenced by their interaction with their mothers and fathers. The infant–mother dyad is considered so important that other social relationships are considered to be derivatives and are neglected or not considered at all. Piagetian theory views cognitive–structural capacities of the young child as restricting the child's social behavior. Thus, for complex social behavior to occur, a person old enough to be capable of controlling and manipulating the dynamics of the relationship needs to be present (i.e., an adult). The view that children lack the cognitive faculties that are necessary for social interaction results in the restriction of the study of early child–peer relationships. The aspects of the psychoanalytic and the Piagetian theories that deemphasize the importance of peer relationships in development and socialization, however, are now being vigorously questioned.

The dyadic, adult–child view of teaching and learning is grossly oversimplified when the power of social dynamics among students that occur regularly in the classroom are taken into consideration (Schmuck, 1978). Whereas classroom teachers do interact frequently with individual students, virtually all of the teacher's classroom behavior occurs within the context of the student-peer group. A student responding to a teacher's directive, for example, does so while being aware of and influenced by the feelings, attitudes, and relationships shared with the student-peer group. A teacher's statements and actions are received by students in the context of their relationships with other students.

In the classroom the influences resulting from student-student relationships have more powerful effects on achievement, socialization, and development than any other factor. Yet the importance and power of peer interaction in the classroom are often ignored. In this chapter the impact of student-student relationships on achievement, appropriate behavior, and general socialization and development will be discussed. Secondly, the critical group dynamic variables teachers and educators can control that will ensure that constructive peer relationships are utilized for achievement, appropriate behavior, cognitive and social development, and general socialization will be covered.

CONSEQUENCES AND CORRELATES OF PEER RELATIONSHIPS

Experiences with peers are not superficial luxuries to be enjoyed by some students and not by others. Student-student relationships are an absolute necessity for healthy cognitive and social development and socialization. In fact, social interactions with peers may be the primary relationships in which development and socialization take place (Lewis & Rosenblum, 1975). There are many important ways in which student-student interaction contributes to the cognitive and social development and general socialization of children and adolescents, such as by:

1. Contributing to the socialization of values, attitudes, competencies, and ways of perceiving the world.
2. Being prognostic indicators of future psychological health.
3. Teaching the social competencies necessary to reduce social isolation.
4. Influencing the occurrence or nonoccurrence of potential problem behaviors in adolescence such as the use of illegal drugs.
5. Providing the context in which children learn to master aggressive impulses.
6. Contributing to the development of sex-role identity.
7. Contributing to the emergence of perspective-taking abilities.
8. Influencing educational aspirations and achievement.

Each of these consequences and correlates of peer relationships will be discussed in this chapter.

Socializing Influences

There is considerable evidence that peer relationships are of central importance in the socialization of the child, providing expectations, models, and reinforcements that shape a wide variety of social behaviors, attitudes, and perspectives (Hartup, 1976; Johnson & Johnson, 1978; Wahler, 1967). Schmuck (1971) states that peers constitute the immediate environment as well as the environment of greatest impact for students in school. On the basis of his review of the literature he concludes that compared to interactions with teachers, interactions with peers are more frequent, intense and varied. In their interactions with peers, children and adolescents directly learn attitudes, values, and information unobtainable from adults, such as the nature of sexual relations and how they are to be developed and managed with peers. In their interactions with each other children and adolescents imitate each other's behavior and identify with friends who have admired competencies. The way in which "ingroup" messages are phrased, the nature of clothes and hair styles, the music valued, what is defined as enjoyable and what is defined as distasteful, what competencies need to be practiced and developed, and so forth, are all based on identification with and imitation of peers. In their interaction with peers, children and adolescents try out, practice, and perfect social roles. Young children may play house, fire department, and a variety of other adult career roles; older children may experiment with various ways in which to be a friend; and adolescents may practice social roles aimed at obtaining acceptance into desired peer groups. Through practicing social roles in their relationships with peers, students have the opportunity for paced, slowly elaborating, enlargement of communicative, aggressive, defensive, and cooperative skills. The formation of relationships with peers, furthermore, not only promotes the values, attitudes, competencies, and perspectives needed to manage productively the challenges of adulthood but also creates coalitions that may last into adulthood to the benefit of children and their friends–partners.

The socialization importance of peers does not end during adolescence. Several studies have demonstrated that peers greatly influence the adoption and internalization of values and attitudes by college students (Chickering, 1969; Newcomb, *et al.*, 1970, 1971; Vreeland & Bidwell, 1965; Wallace, 1966). Lacy (1978) found that frequency of interaction with peers was not a sufficient factor to affect the values of college students. For peers to be an important influence on the internalization of values and attitudes, the content of the interaction had to be relevant to the value dimension and students had to be generally satisfied with and responsive to their fellow students. Friends have an important impact on values throughout one's life.

While much of the evidence indicating that peer relationships are vital and important for socialization is correlational, it is consistent in indicating considerable peer influence on socialization and development.

Indicators of Future Psychological Health

The ability to build and maintain interdependent, cooperative relationships is often cited as a primary manifestation of psychological health (Adler *et al.*, 1956; Fromm-Reichmann, 1950; Johnson & Matross, 1977; Jung & DeLaszlo, 1959; May, 1969; Murray, 1951; Sullivan, 1953). It is no surprise, therefore, that several studies have found a relationship between (a) poor peer relations in children and (*b*) destructive social conduct in adolescence and psychological pathology in adulthood. Kohn and Clausen (1955) found that a much higher percentage of adults diagnosed as psychotic were socially isolated as children than were a normal control sample. Roff (1961), in a study of servicemen who had formerly been patients in a child-guidance clinic, found that men receiving "bad conduct" discharges were more frequently rated by their childhood counselors as having poor peer adjustment than were men with successful service records. Roff (1963), in a study of adult males who were seen as children in child-guidance clinics, found that poor peer relationships were predictive of adult neurotic and psychotic disturbances of a variety of types, as well as disturbances in sexual behavior and adjustment.

Cowen and his associates (1973) found that poor peer adjustment in the third grade was an excellent predictor of emotional difficulties in early adulthood. They accumulated a variety of measures on the children, including IQ scores, school grades, achievement test results, school attendance records, teacher ratings, and peer ratings. Eleven years later, community mental health registers were examined to locate which members of the sample were consulting a mental health professional. Of all the measures secured in the third grade, the best predictor of adult mental health status was the peer rating. Roff, Sells, and Golden (1972) found a significant correlation between childhood peer acceptance and delinquency in adolescence. Among upper-lower-class and middle-class males, delinquency rates were higher among children who were not accepted by their peers than among those who were. Among lower-class males, both highly accepted and highly rejected children had higher delinquency rates than did those who were moderately accepted by peers, but individual case records suggested that the ultimate social adjustment of the peer-accepted children would be better than the rejected ones. Roff and his associates noted, furthermore, that no evidence exists to contradict the hypothesis that peer relations play a central role in psychological development. Finally, Johnson and Norem-Hebeisen (1977) found that adolescents oriented toward individualism and separation from peers displayed high levels of psychological pathology.

There is considerable correlational evidence, therefore, that poor peer relationships in elementary school predicts psychological disturbance in high school, and poor peer relationships in both elementary and high school predict adult psychological pathology.

Acquiring Social Competencies

There is some evidence that social isolation is related to a lack of social competencies. There is also evidence that constructive interaction with peers increases children's social skills. Children identified as social isolates in preschool situations tend to be deficient in leadership skills (Kohn & Rosman, 1972) and tend to not elicit reactions from other children (Stanley & Gottman, 1976). Koch (1935) identified seven distinctly unsocial children along with seven matched control children. For 30 minutes each day for 20 days, each "experimental child" was removed from the nursery along with one sociable child of the subject's own age and surrounded with play materials believed to stimulate cooperative play. The published reports are incomplete, but "changes in the direction of increased sociability were cumulative throughout the investigation [Page, 1936]." Furman, Rahe, and Hartup (in press) conducted a similar study in which they identified preschool children who were social isolates, paired them with a same-age or younger peer, and placed them in a playroom with toys aimed at stimulating cooperative play for ten play sessions. The socially withdrawn children were then observed in their regular classroom. The cooperative play significantly increased the frequency of social interaction of the withdrawn children, especially for those children who were paired with a younger peer. In addition, the withdrawn children positively reinforced their peers much more frequently, giving help and gifts, sharing, accepting guidance and suggestions, and engaging in cooperative play. The researchers concluded that the play sessions provided an opportunity for the isolates to have experiences that occurred infrequently in the regular classroom, such as being socially assertive by directing social activity.

Occurrence of Illegal Drug Use

Adolescents' peer groups and friends seem to have considerable influence on drug use patterns as well as on other problem or possible transition behaviors. There is considerable correlational evidence indicating that whether or not adolescents engage in the use of illegal drugs such as marihuana or engage in other problem or possible transition behaviors such as sexual intercourse and problem drinking is highly related to perceptions of one's friends as engaging in and being approving of the behaviors (Becker, 1953, 1955; Elseroad & Goodman, 1970; Goode, 1970; Jessor, 1975; Jessor, Jessor, & Finney, 1973; Johnson, 1973; Johnston, 1973; Josephson, 1974; Kandel, 1975; Lavenhar *et al.*, 1972). The correlational nature of this evidence supports the position that providing adolescents with peers and friends who do engage in and disapprove of problem behaviors such as the use of illegal drugs may have considerable influence on adolescents' behavior.

Managing Agressive Impulses

Children learn to master aggressive impulses within the context of peer relations (Hartup, 1978). Peer interaction provides an opportunity to experiment aggressively with co-equals, and it is assumed that children who show generalized hostility and unusual modes of aggressive behavior, or children who are unusually timid in the presence of aggressive attack, may be lacking exposure to certain kinds of contacts with peers such as rough-and-tumble play. Rough-and-tumble play seems to promote the acquisition of a repertoire of effective aggressive behaviors and also establishes necessary regulatory mechanisms for modulating aggressive affect. Aggression occurs more frequently in child–child interaction than in adult–child interaction in many different cultures (Whiting & Whiting, 1975), and observational studies in the United States show clearly that feedback from peers escalates and deescalates rates of aggression among nursery school children (Patterson, Littman, & Bicker, 1967; Patterson & Cobb, 1971).

Socializing Sex-Role Identity

Hartup (1978) notes that although gender-typing first occurs in interactions between the child and its parents (Money & Ehrhardt, 1972), the peer culture extends and elaborates this process. Fagot and Patterson (1969) found that social rewards are exchanged within the peer culture according to the gender-appropriateness of the child's behavior. Furthermore, Kobasigawa (1968) found that peer models also contribute to the formation of appropriate sexual attitudes. Kinsey, Pomeroy, and Martin (1948) noted that sexual experimentation is pervasive in child–child interactions and must be seen as contributing positively rather than negatively to socialization. Roff (1966) has shown that adults who are arrested for committing crimes of sexual assault or who have disturbances in sexual adjustment have histories of peer rejection and social isolation. As Hartup (1976) has so aptly stated, if parents were to be given sole responsibility for the socialization of sexuality, humans would not survive as a species.

Acquiring Perspective-Taking Abilities

It is through interaction with peers that children develop the ability to view situations and problems from perspectives other than their own (Piaget, 1932). Perspective-taking is one of the most critical competencies for cognitive and social development as it has been found to be related to effective presentation of information, effective comprehension of information, the constructive resolution of conflicts, willingness to disclose information on a personal level, effective group problem-solving, cooperativeness, positive attitudes toward others within the same situation, autonomous moral judgment, intellectual and cognitive judgment, intellectual and cognitive development, and social adjustment (Johnson, 1975, 1980a). *Social perspective-taking* may be defined as the ability to understand how a situation appears to another person and how that person is reacting cognitively and emotionally to the situation. The opposite of perspective-taking is *egocentrism*, the embeddedness in one's own viewpoint to the extent that one is unaware of other points of view and of the limitations in one's perspective.

Piaget (1932) views all psychological development as a progressive loss of egocentrism and an increase in ability to take wider and more complex perspectives. In discussing Piaget's theorizing, Flavell (1963), for example, states: "In the course of this contact (and especially, his conflicts and arguments) with other children, the child increasingly finds himself forced to reexamine his own percepts and concepts in the light of others, and by so doing, gradually rids himself of cognitive egocentrism [p. 279]." There is correlational and experimental evidence that the development of perspective-taking ability and the reduction of egocentrism is dependent on interaction with peers. Gottmen, Gonso, and Rasmussen (1975) found that children who were able to take the perspective of others were more socially active and more competent in social exchanges with other children than were less able perspective-takers. Keasey (1973), in a study of fifth and sixth graders, found that those who belonged to many social organizations (and therefore interacted with peers more) had higher moral judgment scores (a major ingredient of which is perspective-taking) than did children who belonged to few clubs. Johnson and his colleagues (1976) found that individualistic learning experiences in which students were separated from each other and not allowed to interact promoted higher egocentrism and less perspective-taking ability than did learning in small cooperative groups.

Raising Educational Aspirations and Achievement

Peers have a great deal of influence on students' educational aspirations (Alexander & Campbell, 1964; Coleman, 1961; Coleman et *al.*, 1966; Ramsøy, 1961; Turner, 1964; Wilson, 1959). Alexander and Campbell (1964), for example, found that a student is more likely to aspire to higher education and actually go to college if his best friend also plans to go to college. There is also evidence that students' achievement is related to the educational and economic levels of other students in the school (Coleman *et al.*, 1966; Crain & Weisman, 1972). Freedman (1967) conducted an extensive review of the literature and concluded that student educational aspirations and actual achievement were more affected by fellow students than by any other school influence.

Two studies dealing with primary age students in elementary schools servicing children from low-income families found consistent negative correlations between subject matter achievement and high frequencies of students studying alone; consistent positive correlations were found between time spent with peers in moderate size groups (3–7 members) or large groups under the teacher's direction and subject matter achievement (Soar, 1973; Stallings & Kaskowitz, 1974). These studies imply that when students are young, and when they have poor study skills, interaction with peers can significantly increase achievement.

QUALITY OF STUDENT–STUDENT RELATIONSHIPS

Interpersonal interaction is the basis for learning, socialization, and development. While there has been considerable emphasis on teacher–student interaction, the educational value of student–student interaction has been largely ignored. There is evidence indicating that among other things student–student interaction will contribute to general socialization, future psychological health, acquisition of social competencies, avoidance of engaging in antisocial or problem behaviors, mastery and control of impulses such as aggression, development of a sex-role identity, emergence of perspective-taking ability, and development of high educational aspirations and achievement. *Simply placing students near each other and allowing interaction to take place does not mean, however, that these outcomes will appear.* The nature of the interaction is important. Some interaction leads to students rejecting each other and defensively avoiding being influenced by peers. When student–student interaction leads to relationships characterized by perceived support and acceptance, then the potential beneficial effects described in the previous section are likely to be found.

In order for peer relationships to be constructive influences, they must promote feelings of belonging, acceptance, support, and caring, rather than feelings of hostility and rejection. Perceptions of being accepted by peers affects the following aspects of classroom life:

1. Peer acceptance is positively correlated with willingness to engage in social interaction (Furman, 1977; Johnson & Ahlgren, 1976; Johnson, Johnson, & Anderson, 1978).
2. Peer acceptance is positively correlated with the extent to which students provide positive social rewards for peers (Hartup, Glazer, & Charlesworth, 1967).
3. Isolation in the classroom is associated with high anxiety, low self-esteem, poor interpersonal skills, emotional handicaps, and psychological pathology (Bower, 1960; Gronlund, 1959; Horowitz, 1962; Johnson & Norem-Hebeisen, 1977; Mensh & Glidewell, 1958; Schmuck, 1963, 1966; Smith, 1958; Van Egmond, 1960).
4. Rejection by peers is related to disruptive classroom behavior (Lorber, 1966), hostile behavior and negative affect (Lippitt & Gold, 1959), and negative attitudes toward other students and school (Schmuck, 1966).
5. Acceptance by peers is related to utilization of abilities in achievement situations (Schmuck, 1963, 1966; Van Egmond, 1960).

On the basis of this evidence it may be concluded that peer relationships will have constructive effects only when student–student interaction is characterized by support and acceptance. In order to promote constructive peer influences, therefore, teachers must first ensure that students interact with each other and, second, must ensure that the interaction takes place within a supportive and accepting context. In other words, teachers must control the group dynamics affecting student–student interaction.

When teachers promote student–student interaction in the classroom there are several dynamics of groups that should be taken into account. These include the way in which learning goals are structured, the way in which conflict among ideas are managed, the composition of the group, the norms instituted within the group, and the size of the group.

GROUP GOALS AND GOAL STRUCTURE

All groups have goals, and one of the most important aspects of group effectiveness is the group's ability to define its goals and achieve them successfully. The essence of a goal is that it is an ideal. It is a desired place toward which people are working, a state of affairs that people value. A *group goal* is a future state of affairs desired by enough members of the group to motivate efforts to achieve it. In order to teach successfully, teachers need to know what outcomes they hope to achieve. After their instructional goals are formulated appropriately, a decision must be made as to the type of goal interdependence to be structured among students as they learn.

There are three types of goal interdependence that teachers may structure during instruction (Deutsch, 1962; Johnson & Johnson, 1975): cooperative (positive goal interdependence), competitive (negative goal interdependence), and individualistic (no goal interdependence). A *cooperative* goal structure exists when students perceive that they can obtain their goal if and only if the other students with whom they are linked obtain their goals. A *competitive* goal structure exists when students perceive that they can obtain their goal if and only if the other students with whom they are linked fail to obtain their goals. An *individualistic* goal structure exists when students perceive that obtaining their goal is unrelated to the goal achievement of other students.

In the ideal classroom all three goal structures would be appropriately used. All students would learn how to work cooperatively with other students, compete for fun and enjoyment, and work autonomously on their own. Most of the time, however, students would work on instructional tasks within the goal structure that is the most productive for the type of task to be done and for the cognitive and affective outcomes desired. It is the teacher who decides which goal structure to implement within each instructional activity. The way in which teachers structure learning goals determines how students interact with each other and with the teacher. The interaction patterns, in turn, determine the cognitive and affective outcomes of instruction. There is no aspect of teaching more important than the appropriate use of goal structures.

Student–Student Interaction

Each goal structure will promote a different pattern of interaction among students. Aspects of student–student interaction important for learning include (Johnson & Johnson, 1975): accurate communication and exchange of information, facilitation of each other's efforts to achieve, constructive conflict management, peer pressures toward achievement, decreased fear of failure, divergent thinking, acceptance and support by peers, utilization of other's resources, trust, and emotional involvement in and commitment to learning. A summary of the research findings on the relationships among the three goal structures and these aspects of student–student interaction is presented in Table 4.1 (for specific references, see Johnson & Johnson, 1975, 1978). Cooperation provides opportunities for positive interaction among students, whereas competition promotes cautious and defensive student–student interaction (except under very limited conditions). When students are in an individualistic goal structure, they work by themselves to master the skill or knowledge assigned, without interacting with other students. When teachers wish to promote positive interaction among students, a cooperative goal structure should be used, and competitive and individualistic goal structures should be avoided.

Of special importance for students influencing each other in regard to achievement, appropriate social behavior, cognitive and social development, and general socialization is the degree to which each goal structure affects (a) students' perceptions that they are accepted, supported, and liked

Table 4.1
GOAL STRUCTURES AND INTERPERSONAL PROCESSES THAT AFFECT LEARNING

Cooperative	Competitive	Individualistic
High interaction	Low interaction	No interaction
Effective communication	No, misleading, or threatening communication	No interaction
Facilitation of other's achievement: helping, sharing, tutoring	Obstruction of other's achievement	No interaction
Peer influence toward achievement	Peer influence against achievement	No interaction
Problem-solving conflict management	Win–lose conflict management	No interaction
High divergent and risk-taking thinking	Low divergent and risk-taking thinking	No interaction
High trust	Low trust	No interaction
High acceptance and support by peers	Low acceptance and support by peers	No interaction
High emotional involvement in and commitment to learning by almost all students	High emotional involvement in and commitment to learning by the few students who have a chance to win	No interaction
High utilization of resources of other students	No utilization of resources of other students	No interaction
Division of labor possible	Division of labor impossible	No interaction
Decreased fear of failure	Increased fear of failure	No interaction

by their peers; (*b*) students' exchange of information; (*c*) students' motivation to learn; and (*d*) students' emotional involvement in learning.

Acceptance, Support, Liking

Cooperative learning experiences, compared with competitive and individualistic ones, have been found to result in stronger beliefs that one is liked, supported, and accepted by other students, and that other students care about how much one learns and want to help one learn (Cooper, Johnson, Johnson & Wilderson, 1980; Gunderson & Johnson, 1980; Johnson, Johnson, & Tauer, 1979; Johnson, Johnson, Johnson, & Anderson, 1976; Tjosvold, Marino, & Johnson, 1977). Furthermore, cooperative attitudes are related to the belief that one is liked by other students and wants to listen to, help, and do schoolwork with other students (Johnson & Ahlgren, 1976; Johnson, Johnson, & Anderson, 1978). Individualistic attitudes are related to *not* wanting to do schoolwork with other students, *not* wanting to help other students learn, *not* valuing being liked by other students, and *not* wanting to participate in social interaction (Johnson, Johnson, & Anderson, 1978; Johnson & Norem-Hebeisen, 1977). Furthermore, Deutsch (1962) and other researchers (Johnson, 1974a) found that trust is built through cooperative interaction and is destroyed through competitive interaction.

Exchange of Information

The seeking of information, and utilizing it in one's learning, is essential for academic achievement. Moreover, there is evidence that in problem-solving situations, students working within a cooperative goal structure will *seek* significantly more information from each other than will students working within a competitive goal structure (Crawford & Haaland, 1972). There is also evidence that students working within a cooperative goal structure will make optimal use of the information provided by other students, whereas students working within a competitive goal structure will fail to do so (Laughlin & McGlynn, 1967). Blake and Mouton (1961) provide evidence that competition biases a person's perceptions and the comprehension of viewpoints and positions of other individuals. A cooperative context, compared with a competitive one, promotes more accurate communication of information, more verbalization of ideas and information, more attentiveness to other's statements, and more acceptance of and willingness to be influenced by others' ideas and information. Furthermore, a cooperative context results in fewer difficulties in communicating with and understanding others, more confidence in one's own ideas and in the value that others attach to one's ideas, more frequent open and honest communication, and greater feelings of agreement between oneself and others (Johnson, 1974a; Johnson & R. Johnson, 1975).

Motivation

Motivation is most commonly viewed as a combination of the perceived likelihood of success and the perceived incentive for success. The greater the likelihood of success and the more important it is to succeed, the higher the motivation. Success that is intrinsically rewarding is usually seen as being more desirable for learning than is having students believe that only extrinsic rewards are worthwhile. There is a greater perceived likelihood of success and success is viewed as more important in a cooperative than in a competitive or individualistic learning situation (Johnson & R. Johnson, 1975).

The more cooperative students' attitudes, the more they see themselves as being intrinsically motivated: They persevere in pursuit of clearly defined learning goals; believe that it is their own efforts that determine their school success; want to be good students and get good grades; and believe that ideas, feelings, and learning new ideas are important and enjoyable (Johnson & Ahlgren, 1976; Johnson, Johnson, & Anderson, 1978). These studies also indicate that the more competitive students' attitudes are, the more they see themselves as being extrinsically motivated in elementary and junior high schools. Competitive attitudes are, however, somewhat related to intrinsic motivation, to being a good student, and to getting good marks in senior high school. Individualistic attitudes tend to be unrelated to all measured aspects of the motivation to learn. Being part of a cooperative learning group has been found to be related to a high subjective probability of academic success and continuing motivation for further learning by taking more advanced courses in the subject area studied (Gunderson & Johnson, 1980). There is also experimental evidence which indicates that cooperative learning experiences, compared with individualistic ones, will result in more intrinsic motivation, less extrinsic motivation, and less need for teachers to set clear goals for the students (Johnson, Johnson, & Anderson, 1976).

Emotional Involvement in Learning

Students are expected to become involved in instructional activities and to benefit from them as much as possible. There is evidence that the more cooperative students' attitudes are, the more they express their ideas and feelings in large and small classes and listen to the teacher, whereas competitive and individualistic attitudes are unrelated to indices of emotional involvement in instructional activities (Johnson & Ahlgren, 1976; Johnson, Johnson, & Anderson, 1978). There is evidence that cooperative learning experiences, compared with competitive and individualistic ones, result in a greater desire to express one's ideas to the class (Johnson, Johnson, Johnson, & Anderson, 1976; Wheeler & Ryan, 1973). Cooperative learning experiences, compared with competitive and individualistic ones, promote greater willingness to present one's answers and thus create more positive feelings toward one's answers and the instructional experience (Garibaldi, 1976; Gunderson & Johnson, 1980), as well as more positive attitudes toward the instructional tasks and subject areas (Garibaldi, 1976; Gunderson & Johnson, 1980; R. Johnson & Johnson, 1979; Johnson, Johnson, & Skon, 1979; Wheeler & Ryan, 1973).

Instructional Outcomes

There has been a great deal of research on the relationship among cooperative, competitive, and individualistic efforts and the cognitive and affective outcomes of instruction (Johnson & R. Johnson, 1975, 1978). According to hundreds of research studies that have been conducted, dramatically different learning outcomes will result from the use of the different goal structures. While space is too short in this chapter to review all of the research, the evidence concerning achievement, perspective-taking, self-esteem, psychological health, liking for other students, and positive attitudes toward school personnel such as teachers and principals will be discussed.

Achievement

Johnson, Maruyama, Johnson, Nelson, and Skon (1980) recently completed a meta-analysis of 108 studies comparing the relative effects of cooperative, competitive, and individualistic learning situations on achievement. The results strongly indicate that cooperative learning promotes higher achievement than do competitive and individualistic instruction. These results hold for all age levels, for all subject areas, and for tasks involving concept attainment, verbal problem-solving, categorizing, spatial problem-solving, retention and memory, motor performance, and guessing-judging-predicting. For rote-decoding and correcting tasks, cooperation does not seem to be superior. The average student in a cooperative situation performs at approximately the eightieth percentile of students in competitive and individualistic situations.

Perspective-Taking

An important instructional question is, "Which goal structure is most conducive to promoting the emergence of social perspective-taking abilities?" A series of studies have found that cooperativeness is positively related to the ability to take the emotional perspective of others, and that competitiveness is related to egocentrism (Johnson, 1980; Barnett, Matthews, & Howard, 1979). Cooperative learning experiences, furthermore, have been found to promote greater cognitive and emotional perspective-taking abilities than either competitive or individualistic learning experiences (Bridgeman, 1977; Johnson, Johnson, Johnson, & Anderson, 1976).

Self-Esteem

Schools are concerned with promoting student self-esteem for a variety of reasons, including school and postschool achievement and general psychological health and well-being. There is correlational evidence that cooperativeness is positively related to self-esteem in students throughout elementary, junior, and senior high school in rural, urban, and suburban settings; competitiveness is generally unrelated to self-esteem; and individualistic attitudes tend to be related to feelings of worthlessness and self-rejection (Gunderson & Johnson, 1980; Johnson & Ahlgren, 1976; Johnson, Johnson, & Anderson, 1978; Johnson & Norem-Hebeisen, 1977; Norem-Hebeisen & Johnson, 1980). There is experimental evidence indicating that cooperative learning experiences, compared with individualistic ones, result in higher self-esteem (Johnson, Johnson, & Scott, 1978); that cooperative learning experiences promote higher self-esteem than does learning in a traditional classroom (Blaney, *et al., 1977;* Geffner, 1978); and that failure in competitive situations promotes increased self-derogation (Ames, Ames, & Felker, 1977).

In a series of studies with suburban junior and senior high school students Norem-Hebeisen and Johnson (1980) examined the relationship among cooperative, competitive, and individualistic attitudes and ways of conceptualizing one's worth from the information that is available about oneself. Four primary ways of deriving self-esteem are: (*a*) basic self-acceptance (a belief in the intrinsic acceptability of oneself); (*b*) conditional self-acceptance (acceptance contingent on meeting external standards and expectations); (*c*) self-evaluation (one's estimate of how one compares with one's peers); and (*d*) real–ideal congruence (correspondence between what one thinks one is and what one thinks one should be). Attitudes toward cooperation are related to basic self-acceptance and positive self-evaluation compared to peers, whereas attitudes toward competition are related to conditional self-acceptance, and individualistic attitudes are related to basic self-rejection.

Psychological Health

The ability to build and maintain cooperative relationships is a primary manifestation of psychological health. Johnson and Norem-Hebeisen (1977) compared the attitudes of high school seniors toward cooperation, competition, and individualism with their responses on the Minnesota Multiphasic Personality Inventory (MMPI). They found that attitudes toward cooperation were significantly negatively correlated with 9 of the 10 scales indicating psychological pathology. Attitudes toward competition were significantly negatively correlated with 7 of the 10 psychological pathology scales. Attitudes toward individualism were significantly positively related to 9 of the 10 pathology scales. Both cooperation and competition involve relationships with other people, whereas individualistic activities involve isolation from other people. These findings indicate that an emphasis on cooperative involvement with other people and on appropriate competition during socialization may promote psychological health and well-being, whereas social isolation may promote psychological illness.

In addition, cooperative attitudes were significantly positively related to emotional maturity, well adjusted social relations, strong personal identity, the ability to resolve conflicts between self-perceptions and adverse information about oneself, amount of social participation, and basic trust and optimism. Attitudes toward competition were significantly related to emotional maturity, lack of a need for affection, the ability to resolve conflicts between self-perceptions and adverse information about oneself, social participation, and basic trust and optimism. Individualistic attitudes were significantly related to delinquency, emotional immaturity, social maladjustment, self-alienation, inability to resolve conflicts between self-perceptions and adverse information about oneself, self-rejection, lack of social participation, and basic distrust and pessimism.

Liking for Other Students

There is considerable evidence that cooperative experiences, compared with competitive and individualistic ones, result in more positive interpersonal relationships characterized by mutual liking, positive attitudes toward each other, mutual concern, friendliness, attentiveness, feelings of obligation to other students, and a desire to win the respect of other students (Johnson & R. Johnson, 1975, 1978). There is evidence that cooperative learning experiences, compared with individualistic ones, promote more positive attitudes toward heterogeneity among peers (Johnson, Johnson, & Scott, 1978), and that cooperativeness is related to liking peers who are smarter or less smart than oneself (Johnson & Ahlgren, 1976; Johnson, Johnson, & Anderson, 1978). In studies involving students from different ethnic groups, handicapped and nonhandicapped students, and male and female junior high school students, the evidence indicates that cooperative learning experiences, compared with competitive and individualistic ones, promotes more positive attitudes among heterogeneous students (Armstrong, Johnson, & Balow, 1980; Cook, 1978; Cooper, Johnson, Johnson, &

Wilderson, 1980; DeVries & Slavin, 1978; Johnson, Rynders, Johnson, Schmidt, & Haider, 1979; Rynders, Johnson, Johnson, & Schmidt, in press; Slavin, 1978).

Liking for School Personnel

The more favorable students' attitudes toward cooperation, the more they believe that teachers, teacher aides, counselors, and principals are important and positive; that teachers care about and want to increase students' learning; that teachers like and accept students as individuals; and that teachers and principals want to be friends with students (Gunderson & Johnson, 1980; Johnson & Ahlgren, 1976; Johnson, Johnson, & Anderson, 1978). Moreover, these findings hold in elementary, junior high, and senior high schools in rural, suburban, and urban school districts. In suburban junior and senior high schools, student competitiveness becomes positively related to perceptions of being liked and supported personally and academically by teachers. Individualistic attitudes are consistently unrelated to attitudes toward school personnel. There are also several field experimental studies that demonstrate that students experiencing cooperative instruction like the teacher better and perceive the teacher as being more supportive and accepting, academically and personally, than do students experiencing competitive and individualistic instruction (Gunderson & Johnson, 1980; Johnson, Johnson, Johnson, & Anderson, 1976; Johnson, Johnson, & Scott, 1978; Johnson, Johnson, & Tauer, 1979; Tjosvold, Marino & Johnson, 1977; Wheeler & Ryan, 1973).

Summary

Perhaps the most important aspect of group dynamics a teacher can control is the way in which learning goals are structured. The structure of the learning goals controls how students interact with each other which, in turn, greatly affects the cognitive and affective outcomes of instruction. When teachers wish to promote positive interaction among students (characterized by peer acceptance, support, and liking; student–student exchange of information; motivation to learn; and emotional involvement in learning), a cooperative goal structure should be used and competitive and individualistic goal structures should be avoided. The emphasis on positive goal interdependence among students not only will create the supportive, accepting, and caring relationships vital for socialization but will also promote achievement, perspective-taking ability, self-esteem, psychological health, liking for peers, and positive attitudes toward school personnel. Within any cooperative enterprise, however, controversies will inevitably arise. It is to the management of such conflicts that we now turn.

CONTROVERSY

In any learning situation, conflicts among ideas and opinions are inevitable. They will occur no matter what the teacher does. And, like all conflicts, controversies have the potential for producing highly constructive or highly destructive outcomes, depending on how they are managed. A *controversy* exists when one student's ideas, information, conclusions, theories, and opinions are incompatible with those of another, and the two then seek to reach an agreement. The conflict resides in the two students' attempts to reach a common position. When two students, for example, must come to an agreement on the answer to a math problem, and they disagree as to what the answer should be, a controversy exists.

If managed constructively, controversies can increase student motivation, creative insight, cognitive and social development, and learning. The process by which controversy sparks learning is outlined in Figure 4.1. It begins, as does all learning, with a student categorizing and organizing

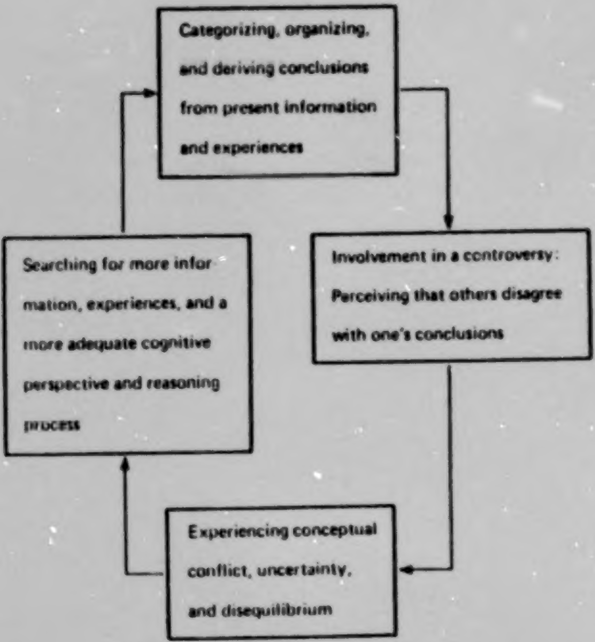
Categorizing, organizing, and deriving conclusions from present information and experiences
Involvement in a controversy: Perceiving that others disagree with one's conclusions
Experiencing conceptual conflict, uncertainty, and disequilibrium
Searching for more information, experiences, and a more adequate cognitive perspective and reasoning process

Figure 4.1. The process of controversy.

current information and experiences so that a conclusion is derived. When the student realizes that other students or the teacher are challenging the student's conclusion, a state of internal conceptual conflict, uncertainty, or disequilibrium is aroused. This uncertainty motivates an active search (called "epistemic curiosity" by Berlyne, 1971) for more information, new experiences, and a more adequate cognitive perspective and reasoning process in hopes of resolving the uncertainty. By adapting his or her cognitive perspective and reasoning through understanding the perspective and reasoning of others, a new or reorganized conclusion is derived. The outcomes of constructively managed controversy will be discussed and then the conditions determining whether controversy will be constructive or destructive will be reviewed.

Outcomes of Controversy

The process of controversy may lead to the following outcomes: epistemic curiosity, accuracy of cognitive perspective-taking, transition to a higher stage of cognitive reasoning, increased quality of problem-solving and decision making, greater creativity, and higher learning.

Epistemic Curiosity

Controversy among students creates conceptual conflict, which leads to epistemic curiosity. *Conceptual conflict* exists when two ideas do not seem to be compatible or when information being received does not seem to fit with what one already knows (Berlyne, 1957, 1966). Disagreement with another person can be a source of conceptual conflict that provokes attempts to explore the other person's ideas (Berlyne, 1966). The greater the disagreement among students, the more frequently the disagreement will occur. Moreover, the greater the number of people disagreeing with a student's position, the more competitive the context of the controversy; and the more affronted the student feels, the greater the conceptual conflict and uncertainty the student will experience (Asch, 1952; Burdick & Burnes, 1958; Festinger, 1964; Gerard & Greenbaum, 1962; Lowry & Johnson, 1980; Inagaki & Hatano, 1968, 1977; Tjosvold & Johnson, 1977, 1978; Tjosvold, Johnson, & Fabrey, 1978; Worchel & McCormick, 1963). Thus, there is evidence that controversy can create a conceptual conflict and epistemic curiosity.

Perspective-Taking

In resolving controversies, students need to be able to both comprehend the information being presented by their opposition and to understand the cognitive perspective their opposition is using to organize and interpret the information. A *cognitive perspective* consists of cognitive organization being used to give meaning to a person's knowledge and the structure of a person's reasoning. Tjosvold and Johnson (1977, 1978) and Tjosvold, Johnson, and Fabrey (1978) conducted three experiments in which they found that the presence of controversy promotes greater understanding of another person's cognitive perspective than does the absence of controversy. Students engaging in a controversy were better able subsequently to predict what line of reasoning their opponent would use in solving a future problem than were students who interacted without any controversy. Kurdek (in press) found that high cognitive perspective-taking skill was related to arguing with peers in students in the first through fourth grades.

Cognitive Reasoning

Cognitive development theorists (Flavell, 1963; Kohlberg, 1969; Piaget, 1948, 1950) have posited that it is repeated interpersonal controversies in which students are forced again and again to take cognizance of the perspective of others that promotes cognitive and moral development, the ability to think logically, and the reduction of egocentric reasoning. Such interpersonal conflicts are posited to create disequilibrium within students' cognitive structures, which motivate a search for a more adequate and mature process of reasoning. There are several studies that demonstrate that pairing a conserver with a nonconserver, and giving the pair conservation problems to solve, results in the conserver's answer prevailing on the great majority of conservation trials and in the nonconserver learning how to conserve (Botvin & Murray, 1975; Doise & Mugny, 1979; Doise, Mugny, & Perret-Clermont, 1976; Perret-Clermont, in press; Miller & Brownell, 1975; Mugny & Doise, 1978; Murray, 1972; Murray, Ames, & Botvin, 1977; Silverman & Geiringer, 1973; Smedslund, 1961; Silverman & Stone, 1972). There are a number of studies that demonstrate that when students are placed in a group with peers who use a higher stage of moral reasoning, and the group is required to make a decision as to how a moral dilemma should be resolved, advances in the students' level of moral reasoning result (Blatt, 1969; Blatt & Kohlberg, 1973; Crockenberg & Nicolayev, 1977; Keasey, 1973; Kuhn, Langer, Kohlberg, & Haan, 1977; LeFurgy & Woloshin, 1969; Maitland & Goldman, 1974; Rest, Turiel, & Kohlberg, 1969; Turiel, 1966). Taken together, these studies provide evidence that controversies among students can promote transitions to higher stages of cognitive and moral reasoning. Such findings are important as there is little doubt that higher levels of cognitive and moral reasoning cannot be directly taught (Inhelder & Sinclair, 1969; Sigel & Hooper, 1968; Sinclair, 1969; Smedslund, 1961a, 1961b; Turiel, 1973; Wallach & Sprott, 1964; Wallach, Wall, & Anderson, 1967; Wohlwill & Lowe, 1962).

Quality of Problem-Solving

The purpose of controversy within a group is to arrive at the highest quality problem solution or decision that is possible. There is evidence that the occurrence of a controversy within a group does result in a higher quality problem solution and decision (Boulding, 1964; Glidewell, 1953; Hall & Williams, 1966, 1970; Hoffman & Maier, 1961; Hoffman, Harburg, & Maier, 1962; Maier & Hoffman, 1964; Maier & Solem, 1952). Furthermore, disagreements within a group have been found to provide a greater amount of information and variety of facts, and a change in the salience of known information which, in turn, results in shifts in judgment (Anderson & Graesser, 1976; Kaplan, 1977; Kaplan & Miller, 1977; Vinokur & Burnstein, 1974).

Creativity

Controversy is an important aspect of gaining creative insight by seeing a problem from a different perspective and reformulating it in a way that lets new orientations to a solution emerge. There is evidence that controversy increases the number of ideas, quality of ideas, feelings of stimulation and enjoyment, and originality of expression in creative problem-solving (Bahn, 1964; Bolen & Torrance, 1976; Dunnette, Campbell, & Jaastad, 1963; Falk & Johnson, 1977; Peters & Torrance, 1972; Torrance, 1970, 1971, 1973; Triandis, Bass, Ewen, & Mikesele, 1963). And there is also evidence that controversy results in more creative problem solutions, with more member satisfaction, compared to group efforts that do not include controversy (Glidewell, 1953; Hall & Williams, 1966, 1970; Hoffman, Harburg, & Maier, 1962; Maier & Hoffman, 1964; Rogers, 1970). These studies further demonstrated that controversy encourages group members to dig into a problem, raise issues, and settle them in ways that show the benefits of a wide range of ideas being used, as well as resulting in a high degree of emotional involvement in and commitment to solving the problems the group is working on.

Achievement

Finally, there is evidence that controversy increases the amount of mastery and retention of the subject matter being learned (Lowry & Johnson, 1980; Smith, Johnson & Johnson, 1980). Furthermore, students who experience conceptual conflict resulting from controversy are better able to generalize the principles they learn to a wider variety of situations than are students who do not experience such conceptual conflict (Inagaki & Hatano, 1968, 1977).

Student–Student Interaction

Although controversy can operate in a beneficial way, it will not do so under all conditions. As with all conflict, the potential for either constructive or destructive outcomes is present in a controversy. Whether positive or negative consequences result depends on the conditions under which controversy occurs and the way in which it is managed. These conditions and procedures include: the goal structure within which the controversy occurs, the heterogeneity among students, the amount of relevant information distributed among students, the ability of students to disagree with each other without creating defensiveness, and the perspective-taking skills of the students.

Duetsch (1973) emphasizes that the context in which conflicts occur has important effects on whether the conflict turns out to be constructive or destructure. There are two possible contexts for controversy: cooperative and competitive. Furthermore, there are several ways in which a cooperative context facilitates constructive controversy whereas a competitive context promotes destructive controversy:

1. In order for controversy to be constructive, information must be accurately communicated. As was discussed previously, communication of information is far more complete, accurate, encouraged, and utilized within a cooperative rather than a competitive context.
2. Constructive controversy requires a supportive climate in which students feel safe enough to challenge each other's ideas. This evidence has already been reviewed, and it indicates that cooperation provides a far more supportive climate than does competition.
3. In order for controversy to be constructive, it must be valued. Cooperative learning experiences, compared with individualistic ones, promotes a belief that controversy is constructive (Johnson, Johnson, & Scott, 1978).
4. Constructive controversy requires dealing with feelings as well as with ideas and information. There is evidence that cooperativeness is positively related and competitiveness negatively related to the ability to understand what other people are feeling and why they are feeling that way (see previous discussion).
5. How controversies are defined has great impact on how constructively they are managed. Within a cooperative context, conflicts tend to be defined as problems to be jointly solved, whereas within a competitive context conflicts tend to be defined as "win–lose" situations (Deutsch, 1973; Rubin & Brown, 1975).
6. Constructive controversy requires that students recognize similarities

between positions as well as differences. Students participating in a controversy within a cooperative context identify more of the similarities between their positions than do students participating in a controversy within a competitive context (Judd, 1978).

A second major factor influencing whether controversy results in constructive or destructive outcomes is the heterogeneity among the students involved. While the research concerning this issue is reviewed within the section on group composition, it may be stated here that the differences among students in terms of personality, sex, attitudes, background, social class, cognitive reasoning strategies, cognitive perspectives, information, and skills, lead to diverse organization and processing of present information and experiences, which in turn begins the cycle of controversy. There is evidence that more controversy occurs in heterogeneous than in homogeneous groups (Fiedler, Meuwese, & Oonk, 1961; Torrance, 1961).

If controversy is to lead to learning, the group members must possess information that is relevant to the solution of the problem on which they are working. The more information available, the easier it should be to solve their problem. There are a number of studies that demonstrate that groups that have more information about a problem usually perform better than do groups with less information (Goldman, 1965; Laughlin & Branch, 1972; Laughlin & Johnson, 1966; Laughlin, Branch, & Johnson, 1969; Laughlin, Keer, Davis, Haiff, & Marciniak, 1975; Tuckman, 1967). Having relevant information available, however, does not mean that it will be utilized. For example, when the task is such that the correct answer is immediately recognizable when it is proposed, it tends to be immediately accepted (Laughlin & Bitz, 1975), but when the task is such that the correct answer is not immediately recognizable, it may take one group member to propose it and another member to support the answer before the group adopts it (Laughlin, Keer, Davis, Haiff, & Marciniak, 1975). This later study, furthermore, found that even when the expertise of the group members was uniformly very low, the group would still successfully solve the problem about 20% of the time.

In order for controversies to be managed constructively, students need to be able to disagree with each other's ideas while confirming each other's personal competence. There is evidence that disagreeing with other people while imputing that they are incompetent tends to increase their commitment to their own ideas and their rejection of the other's ideas (Brown, 1968, Tjosvold, 1974). Tjosvold, Johnson, and Fabrey (1980) and Tjosvold, Johnson, and Lerner (in press) conducted a pair of studies in which disagreeing while confirming the other's competence was compared with disagreeing while imputing the other was incompetent. They found that confirmation of the opponent's competence resulted in being better liked, the opponent being less critical of one's ideas, more open-minded to and more interested in learning more of one's ideas, and the opponent being more willing to incorporate one's information and reasoning into the opponent's own analysis of the problem.

Perhaps the most important set of skills for exchanging information and opinions within a controversy is perspective-taking. More information, both personal and impersonal, is disclosed when one is interacting with a person engaging in perspective-taking behaviors (Colson, 1968; Noonan-Wagner, 1975; Sermat & Smyth, 1973; Taylor, Altman, & Sorrentino, 1969). Perspective-taking ability increases people's ability to phrase messages so that they are easily understood by others and to comprehend accurately other people's messages (Feffer & Suchotliff, 1966; Flavell, 1968; Hogan & Henley, 1970). Engaging in perspective-taking behaviors in conflicts results in increased understanding and retention of the opponent's information and perspective (Johnson, 1971). During controversies, perspective-taking behaviors (compared with egocentrically emphasizing one's own information and perspective) results in more creative and higher quality solutions (Falk & Johnson, 1977) and in greater gains in accuracy of problem-solving (Johnson, 1977). Finally, perspective-taking behaviors promote more positive perspections of the information exchange process, fellow problem-solvers, and the problem-solving experience (Falk & Johnson, 1977; Johnson, 1971, 1977; Noonan-Wagner, 1975).

GROUP COMPOSITION

There has been a considerable emphasis on homogeneous grouping within education. Ability grouping or tracking separates students defined as being high, medium, and low in academic ability into separate classrooms within such basic areas as reading. Yet there is no consistent evidence supporting such practices and, in fact, there is evidence indicating that such practices produce negative consequences for both achievement and development.

It is reasonable to believe that a group's behavior will be affected by the distribution and patterning of such member characteristics as abilities, knowledge, resources, attitudes, interests, personality dispositions, age, sex, and social status. Within educational endeavors, the issue of homogeneity or heterogeneity of students must be considered in terms of the influence of group composition on achievement, cognitive and social development, and socialization. Group composition must be evaluated in reference to the demands confronting the group, rather than in a vacuum. In addressing the issue of how group composition affects academic achievement, cognitive and social development, and socialization, current research on group problem-solving, ability grouping, and cross-age interaction will be reviewed.

Achievement and Problem-Solving

There is contradictory evidence concerning the effectiveness of homogeneous and heterogeneous groups in problem-solving. Several studies have found heterogeneous groups to be superior to homogeneous groups in terms of the quality of the solution, creativity of the group solution, and member satisfaction with the solution (Amaria, Brian, & Leith, 1969; Ghiselli & Lodahl, 1958; Goldman, 1965; Hoffman, 1959; Hoffman & Maier, 1961; Hoffman, Harburg, & Maier, 1962; Pelz, 1956; Triandis, Hall, & Ewen, 1965; Ziller, 1955; Ziller & Exline, 1958). Whereas, other studies have found that either homogeneous groups arrive at better solutions than do heterogeneous groups or that there is no difference between heterogeneous and homogeneous groups in terms of the quality of group solutions (Altman & McGinnies, 1960; Fiedler, Meuwese, & Oonk, 1961; Haythorn, *et al.*, 1956; Shaw, 1960; Falk & Johnson, 1977). The failure of heterogeneous groups to always outperform homogeneous groups raises possibilities that when relevant expertise is lacking in the group, heterogeneity may not affect the quality of problem solving, or when group members do not have the skills to exchange information effectively, heterogeneity may not be utilized productively. In general, literature indicates that when there are varied functions to perform in the group, when group members have the social skills needed to exchange and utilize information, and when expertise relevant to the group's task is present in the group, heterogeneity is an asset.

Ability Grouping

It is a common practice in many schools to separate students through ability grouping or tracking so that the rapid learners are placed in one class, the average learners in another, and the slow learners in a third. The rationale for ability grouping is that narrowing the ability range in the classroom facilitates the provision of more appropriate learning tasks, makes more teacher time available to students of a given ability level, and stimulates teachers to gear their teaching to the level of the group (Goldberg, Passow, & Justman, 1966). While the practice has been widespread for at least 80 years, and heavily researched for 50 years, there is no solid evidence that any student benefits from such segregation. Ability grouping remains a very dubious practice. Some of its more serious problems include (Johnson, 1979):

1. The reliability and validity of the measures to differentiate slow, average, and rapid learners are low. IQ tests are not precise enough to make such judgments concerning students, especially if the students are not white middle-class children. Lower-class students, impulsive students, students whose basic language is not English, and many other types of students are consistently misclassified on the basis of IQ tests. Furthermore, there is more to being gifted intellectually than IQ. Creativity and leadership, for example, are also important qualities. Psychologists have not yet derived a definition of intelligence that is adequate enough to construct a valid and reliable measure of it. For many reasons, the tools needed to differentiate among slow, average, and rapid learners are not available at present.

2. Because of the lack of validity and reliability of the measures used to assign students to ability levels, many students are originally sent to the wrong level. The second problem with using ability grouping is that once misclassified, it is difficult for a student to be reassigned. Once labeled, always labeled! Jackson (1964) found that while 40% of all students should be transferred from one ability level to another, only between 1 to 5% were actually transferred. The rigidity of level membership once students are assigned invalidates the practice of ability grouping in schools.

3. There is considerable evidence that ability grouping is segregated on the basis of social class and ethnic membership (Eash, 1961; Yates, 1966; Goldberg, Passow, & Justman, 1966; Husen & Svensson, 1960; Johnson, 1970; Douglas, 1964). White students who come from middle- or upper-class families and who are clean, well-clothed, and well-behaved have a greater chance of being placed in the high ability track than their measured ability would seem to justify.

4. There is no consistent evidence that ability grouping will increase the achievement of students at any ability level. The rapid learners do not benefit with higher achievement and in some cases the average and slow learners' achievement is damaged by the absence of more intellectually oriented peers to interact with (Borg, 1964; Eash, 1961; Goldberg, Passow, & Justman, 1966; Millman & Johnson, 1964; Svensson, 1962).

5. There is no consistent evidence that ability grouping either raises or lowers students' self-esteem. Some studies find that the stigma attached to being placed in the low ability track reduces self-esteem, while other studies find that high achievers' self-esteem is somewhat reduced by homogeneous grouping. Yet other studies contradict such findings or find that ability grouping in and of itself has no effect on self-esteem.

6. There is evidence that teachers expect less of students placed in low ability tracks and generally underestimate the capabilities of each student (Goldberg, Passow, & Justman, 1966; Tillman & Hull, 1964; Wilson, 1963).

7. Ability grouping, by reducing the heterogeneity among students in the classroom, prevents students from obtaining needed socializing experiences and from gaining valuable insights from others. The basic social competencies needed for healthy psychological development may be better provided for in heterogeneous classrooms.

Because of these and other problems, ability grouping does not seem to be justifiable as a procedure to improve instruction or to facilitate intellectual or social development. There are other more effective means of ensuring every student is fully challenged and learns maximally. The instructional strategies teachers use have far more powerful effects on student achievement and socialization than does the separation of students into ability levels.

Same Age versus Mixed Age

Age homogeneity, which was not introduced into American schools until the mid-nineteenth century, is now firmly entrenched (Kett, 1974). Most school classrooms are age-graded so that students spend most of the school day in the presence of peers who are within 12 months of being the same age. This is an unusual situation in the sense that in most cultures children interact with multiage peers rather than with peers of the same chronological age (Hartup, 1978). Barker and Wright (1955) in a study done in the United States found that approximately 65% of children's interactions with other children outside the school environment involved individuals who differed in age by *more* than 12 months.

Hartup (1978) argues that mixed-age groups are well-suited to children's needs. He states:

> Social adaptation requires skills in both seeking help (dependency) and giving it (nurturance); being passive and being sociable; being able to attack others (aggression) and being able to contain one's hostility; being intimate and being self-reliant. Since there is a greater likelihood that some of these behaviors will occur in interaction with younger children than with older children (e.g., nurturance), some in interaction with agemates rather than non-agemates (e.g., aggression), and some in interaction with older children rather than younger children (e.g., dependency), mixed-age social contacts would seem to serve children in ways that same-age contacts cannot [p. 147].

There is some evidence that mixed-age classes might be preferable to same-age classes in elementary schools. Ferguson (1965) found that both second and fifth graders worked harder at simple tasks when social rewards were supplied by a non-agemate than by an agemate. On a social problem-solving task third graders worked with greater speed, success, and task persistence when they were the only third grader in a triad than when they were in the majority (Graziano, French, Brownell, & Hartup, 1976).

There is some evidence that social learning occurs more effectively in interaction with older children. Allen and Feldman (1976) found that in tutoring situations, children prefer to be taught by children older than themselves. In addition, Thelen and Kirkland (1976) found that reciprocal imitation is more characteristic of children's interactions with older children than with younger children, and Peifer (1971) found that older children are more effective models than younger children. Finally, Lougee (1977) found that older children are especially good models in situations calling for difficult perceptual judgments or complicated skills rather than declarations of personal preferences or tastes.

There is evidence that the effects of previous isolation from peers may be best repaired in interaction with younger than with same-age peers. Furman, Rache, and Hartup (1977) located 24 socially withdrawn children in five childcare centers by means of observations conducted over 2-week periods. The identified children were social isolates but were not autistic or emotionally disturbed. For 8 children, an intervention was devised consisting of 15 daily play sessions involving a second child who was 18 months younger than the subject. For 8 children, daily play sessions with a peer who was within 4 months of their age were arranged. The remaining 8 children received no treatment at all. Significant improvement in sociability occurred in both experimental groups as contrasted to the no-treatment group (which did not change), but greater increases in sociability occurred among the children exposed to younger peers than among those exposed to same-age peers.

Summary

The question facing teachers concerning group composition is whether students should be placed in homogeneous or heterogeneous groups. Traditionally, students have been tracked on the basis of ability into separate classrooms or have been placed into homogeneous groups with regard to ability, skills, or learning deficits within the classroom. While the research findings are not consistent, the overall weight of the evidence indicates that higher achievement by rapid, average, and slow learners will result when they are placed in heterogeneous learning groups. This is especially true when students learn within cooperative groups (Johnson & Johnson, 1978; Johnson, Skon, & Johnson, 1978; Skon, Johnson, & Johnson, 1980; Wodarski *et al.*, 1973). The weight of the evidence, furthermore, is against the use of ability grouping and tracking, and there are a variety of experiences important for socialization and cognitive and social development in classrooms where students of various ages are given the opportunity to interact and learn together.

CLASSROOM AND GROUP NORMS

Students should not run in the hallways. Students should not use foul language in the classroom. Students should not strike classmates or peers. Students should pay attention when the teacher speaks. Students should do their homework. Students should not arrive for class late. All of these expectations are norms. *Norms* refer to the common beliefs regarding appropriate behavior (Johnson, 1970). They dictate how members of the school, classroom, or group are expected to behave. Some norms apply to all people within the classroom whereas others apply only to the teacher or to the students. Because norms refer to the expected behavior sanctioned (reinforced or punished) by members of the classroom or group, they have a specific "ought to" or "must" quality; group members must not disrupt the group's work, group members ought to participate in discussions, and so on. The norms of any group vary in their importance. Those that are less important for the objectives and values of the classroom or group usually allow for a greater range of behavior and bring less severe pressures for people to conform than do norms that are highly relevant for group functioning.

For a classroom or group norm to influence students' behavior, they must recognize that it exists, be aware that other group members accept and follow the norm, and accept and follow it themselves. At first students may conform to a classroom or group norm because groups typically reward conforming behavior and punish nonconforming behavior. Later students may internalize the norm and conform to it automatically, even when no other group members are present.

Norms influence interpersonal relationships by helping people to know what is expected of them and what they should expect from others. Classroom and group life is orderly and predictable partly because of norms. Furthermore, norms have powerful influences on the behavior of students and teachers. They also influence how people view their physical and social worlds (Festinger, 1950; Sherif, 1936), and what attitudes and values people adopt (Newcomb, 1952). Group norms can support and liberate members so that each one can react as one personally feels (Asch, 1952, Milgram, 1965). Finally, they greatly influence how students and teachers will behave in the classroom and during instructional activities.

It is evident that the norms develop in student peer groups may help or hinder the educational process. Coleman (1961) found in a survey of 10 midwestern high schools that the student norms valued athletic achievement over academic success. In the schools where these norms were most powerful, the students who endorsed academic values were not the most intelligent but were the ones most willing to work hard at an activity that was relatively unrewarded by their peers. Orth (1963) in a study of the Harvard Graduate School of Business found that the greatest number of overachievers were in a student subgroup that endorsed academic values, whereas the greatest number of underachievers were in a student subgroup that was nonacademically oriented. Hargreaves (1967) found that while some student informal peer groups valued academic achievement and looked down upon "mucking around in class," other student informal peer groups valued obstructing teachers so that less material was covered in class and looked down upon students who cooperated with teachers' efforts to instruct. In one informal peer group truancy was encouraged, physical violence was used against students who cooperated with teachers, and destruction of school property was valued. Other studies in both educational (Hughes, Becker, & Geer, 1962) and industrial (Roethlisberger & Dickson, 1939) settings suggest that informal peer group norms can influence members to achieve at a lower level than is desired by the organization. It is not uncommon for informal peer group norms among students to explicitly express disapproval towards those who achieve too high or who overexert themselves for grades (don't be a "curve-breaker"). Yet when teachers can successfully initiate classroom norms valuing high achievement and cooperation with the instructional program, a positive classroom climate can result.

Traditionally, schools in the United States have chosen not to utilize group norms systematically as a way to increase student achievement and control disruptive student behavior. Consequently, peer group norms have often hindered academic efforts. Yet the systematic use of peer group norms have been successfully used to resocialize delinquents (Pilnick, *et al.*, 1966; Empey & Rabow, 1961; McCorkle, Elias, & Bixby, 1958), drug addicts (Yablonsky, 1962), and alcoholics. Consciously changing peer group norms has also been shown to eliminate discipline problems (Lippitt, 1964). One of the major advantages of structuring learning goals cooperatively (as compared with competitively and individualistically) is that the peer group norms will encourage achievement and involvement in instructional activities (Bronfenbrenner, 1962; Deutsch, 1949; DeVries & Edwards, 1974; DeVries, Edwards, & Wells, 1974; DeVries, Muse, & Wells, 1971; Hulten, 1974; Spilerman, 1971; Haines & McKeachie, 1967), as well as more on-task, studying behavior and less off-task, apathetic, nonstudying, and disruptive behaviors on the part of students (Wodarski *et al.*, 1973; DeVries, Edwards, & Wells, 1974a).

GROUP SIZE

The number of students within a class or learning group has several important implications for academic achievement, cognitive and social development, and general socialization. Although optimum group size depends on the group's task, composition of members, time available, level of social skills of students, and many other factors, some of the more important aspects of group size are as follows:

1. As the size of the group increases, the total resources of the group increases, but not the usable resources (Deutsch, 1969; Thomas & Fink, 1963). The range of abilities, expertise, and skills that are available to the group increases with the increasing group size, as well as the sheer number of "hands" that are available for acquiring and processing information. The usable resource per member, however, will often increase at a slower rate than will the total resources and often will, beyond a certain point, not increase at all. Adding a new member to a group of three will have more impact, for example, than adding a new member to a group of thirty.
2. As the size of the group increases, the heterogeneity among members will also increase. The probability that any given characteristic will appear increases as the size of the group increases, but the probability that all members have a given characteristic decreases as the size of the group increases.
3. As the size of the group increases, the opportunity for individual participation and reward decreases. The larger the group, the less opportunity each student has to participate in a discussion, the greater the feelings of threat and the greater the inhibition of impulses to participate, and the more a few members will dominate (Bales, Strodtbeck, Mills, & Roseborough, 1951; Gibb, 1951; Stephan & Mishler, 1952). Barker and Gump (1964) found that as school size increases, individual participation in high school life decreases.
4. As the size of the group increases, the more the member's energy will have to be directed towards coordinating and assembling the contributions of the individual members (Deutsch, 1969).
5. As the size of the group increases, the less liked, supported, and valued individual members will be, and the greater the absenteeism, formality, conflict, and dissatisfaction with the group (Baumgartel & Sobol, 1959; Cleland, 1955; Katz, 1949; O'Dell, 1968; Slater, 1958). Olson (1971) found that as class size became larger, interpersonal regard among students decreased.
6. As the size of the group increases, the clarity of member's perceptions of each other's degree of mastery of the material being learned will decrease.

Steiner (1972) argues that the type of task interacts with group size, so that in additive tasks (i.e., the outcome is the result of some combination of individual efforts) and disjunctive tasks (i.e., the outcome depends on at least one group member successfully performing the task) achievement will increase as the size of the group increases. But on conjunctive tasks (i.e., the outcome depends on everyone in the group accomplishing the task) performance may go down as group size increases. There are several studies that suggest that class size makes no difference in student achievement, but Sitkei (1968) stresses that there are twice as many studies that favor smaller classes over larger classes than vice versa. In a recent review of the research, Glass and Smith (1978) conducted a meta-analysis of the research on class size and achievement and, when the well-controlled studies were separated from the poorly controlled studies, a clear relationship between class size and achievement was demonstrated. They found that achievement increases dramatically as class size decreases from above 20 to 2. Since it does not seem realistic to recommend that class size in American schools be reduced to under 5, 10, or even 15 students, Glass and Smith's findings may imply that more instruction should take place in small learning groups rather than with an entire class as a whole.

Taken in its entirety, the evidence concerning group size indicates that the optimal size of learning groups within the classroom might be from 4 to 6 members. Such a group is large enough that enough diversity and resources are present to facilitate achievement, and is small enough that everyone's reosurces are utilized, everyone will participate and receive rewards for their contributions. This size group also minimizes the energy needed to coordinate members' contributions, acceptance and support is highlighted, and the achievement level of each student is clearly perceived by other group members. When students are very young, however, or when there is a marked lack of the social skills necessary for working productively with other students, pairs and triads may be more productive than larger groups.

GROUP PROCESSES AND THE COGNITIVE SOCIAL-PSYCHOLOGICAL VIEW OF LEARNING

In the first chapter a cognitive social-psychological view of learning is presented that emphasizes as a primary determinant of behavior the information concerning appropriate behavior gained from interaction with others. There are two ways in which messages concerning appropriate behavior are sent by significant others; directly through expectations and indirectly through structural influences such as the goal structure of the situation and the situational norms. There can be little doubt that developmentally, peers become increasingly important influences on students' behavior and attitudes as students grow older and become more and more independent of adults. Despite the prevailing concentration on adult–child relationships in education, it is the messages from peers that in most cases students choose to attend to, believe, and incorporate into their decisions.

The group processes of the classroom determine the indirect influences on students' perceptions of what is appropriate behavior. By definition group norms communicate such expectations. Of equal importance is the goal structure of the situation. Watson and Johnson (1972) highlight the importance of situational structure in the Structure-Process-Attitude theory of attitude change. Each goal structure implies certain patterns of behavior that are expressed in the definition of the student role. The role of the student includes facilitating each other's learning in the cooperative situation, frustrating each other's learning in the competitive situation, and ignoring each other's learning in the individualistic situation. Such role expectations determine how students interact with classmates. The interaction patterns determine what information is received from peers and the value attached to the information, as well as achievement and other instructional outcomes. Especially important to learning is the feedback from peers in a cooperative situation that achievement-oriented behavior is desired and appropriate, as compared to the peer feedback that off-task, nonachievement-oriented behavior is appropriate in the competitive situation. Goal structures establish role expectations as to how students should behave, and in the process of carrying out the role, the information they receive and the value they attach to the information are affected. Cooperative interaction, furthermore, strengthens the positiveness of relationships among students, thus increasing the importance of peer feedback concerning appropriate behavior. In essence, the goal structure influences students' perceptions of appropriate behavior and affects the probability that students place on the likelihood of being able to fulfill such needs as affiliation and belonging. Thus, the evidence reviewed in this chapter indicates that the nature of student–student interaction and group dynamics affects the quality and quantity of perceived messages from others regarding appropriate or expected behavior.

SUMMARY AND CONCLUSIONS

Teaching and learning do not typically take place within a dyadic relationship between an adult and a child. Students' learning takes place within a network of relationships with peers, and it is these relationships that form the context within which all learning takes place. Student–student relationships are an important and vital aspect of classroom learning and students' development and socialization. There is considerable evidence that peer relationships within the classroom contribute to general socialization, development of social competencies and general psychological health, management of agressive impulses, socialization of sex roles, internalization of values, acquisition of perspective-taking abilities, and achievement. Constructive peer relationships, however, do not take place automatically. They must be characterized by acceptance, liking, and support.

In order to ensure that accepting and supportive student–student relationships are developed, teachers may control the group dynamics affecting the interaction among students. There are several aspects of group dynamics that are important for such a purpose:

1. *The structure of learning goals.* It is important that students be primarily placed in cooperative learning groups and that competitive and individualistic learning are used sparingly.
2. *The way in which controversies are managed.* It is important that controversies be structured by the teacher in ways that ensure their constructive resolution.
3. *The heterogeneity among students.* It is important that students have the opportunity to interact with diverse peers with different perspectives, attitudes, backgrounds, abilities, and opinions, and of different ages.
4. *The classroom norms.* It is important that the norms of the classroom support achievement and appropriate behavior by students.
5. *The size of the learning groups.* It is important that the learning groups be large enough so that needed resources and diversity are present, but small enough so that everyone's resources are fully utilized, participation is high, acceptance and support of all members is possible, coordination is easy, and individual accountability for learning is feasible.

REFERENCES

Adler, A. H., Ansbacher, H. L., & Ansbacher, R. R. (Eds.). *The individual psychology of Alfred Adler.* New York: Basic Books, 1956.

Alexander, C., & Campbell, E. Peer influences on adolescent aspirations and attainments. *American Sociological Review,* 1964, *29,* 568–575.

Allen, V., & Feldman, R. Studies on the role of tutor. In V. L. Allen (Ed.), *Children as tutors.* New York: Academic Press, 1976.

Altman, I., & McGinnies, E. Interpersonal perception and communication in discussion groups of varied attitudinal composition. *Journal of Abnormal and Social Psychology,* 1960, *60,* 390–395.

Amaria, R., Brian, L., & Leith, G. Individual versus cooperative learning. *Educational Research,* 1969, *11,* 95–103.

Ames, C., Ames, R., & Felker, D. Informational and dispositional determinants of children's achievement attributions. *Journal of Educational Psychology,* 1977, *68,* 63–69.

Anderson, N., & Graesser, C. An information integration analysis of attitude change in group discussion. *Journal of Personality and Social Psychology,* 1976, *34,* 210–222.

Armstrong, B., Johnson, D. W., & Balow, B. Cooperative goal structure as a means of integrating learning-disabled with normal-progress elementary pupils. *Contemporary Educational Psychology*, in press, 1980.

Asch, S. E. *Social psychology*. Englewood Cliffs, New Jersey: Prentice-Hall, 1952.

Bahn, C. *The interaction of creativity and social facilitation in creative problem solving*. Doctoral dissertation, Columbia University, 1964. University Microfilms, No. 65–7499.

Bales, R., Strodtbeck, F., Mills, T., & Roseborough, M. Channels of communication in small groups. *American Sociological Review*, 1951, *16*, 461–468.

Barker, R., & Gump, P. *Big school, small school: High school size and student behavior*. Stanford, California: Stanford University Press, 1964.

Barker, R., & Wright, H. *Midwest and its children*. New York: Harper and Row, 1955.

Barnett, M., Matthews, K., & Howard, J. Relationship between competitiveness and empathy in 6- and 7-year-olds. *Developmental Psychology*, 1979, *15*, 221–222.

Baumgartel, H., & Sobol, R. Background and organizational factors in absenteeism. *Personnel Psychology*, 1959, *12*, 431–443.

Becker, H. Becoming a marijuana user. *American Journal of Sociology*, 1953, *59*, 235–242.

Becker, H. Marijuana use and the social context. *Social Problems*, 1955, *3*, 35–44.

Berlyne, D. Uncertainty and conflict: A point of contact between information-theory and behavior-theory concepts. *Psychological Review*, *64*, 1957, 329–339.

Berlyne, D. Notes on intrinsic motivation and intrinsic reward in relation to instruction. In J. Bruner (Ed.), *Learning about learning* (Cooperative Research Monograph No. 15). Washington, D.C.: U.S. Department of Health, Education, and Welfare, Office of Education, 1966.

Berlyne, D. *Aesthetics and psychobiology*. New York: Appleton-Century-Crofts, 1971.

Blake, R. R., & Mouton, J. S. Comprehension of own and outgroup positions under intergroup competition. *Journal of Conflict Resolution*, 1961, *5*, 304–310.

Blaney, N., Stephen, C., Rosenfield, D., Aronson, E., & Sikes, J. Inter-dependence in the classroom: A field study. *Journal of Educational Psychology*, 1977, *69*, 139–146.

Blatt, M. *The Effects of classroom discussion upon children's level of moral judgment*. Unpublished doctoral dissertation, University of Chicago, 1969.

Blatt, M., & Kohlberg, L. The effects of classroom moral discussion upon children's level of moral judgment. In L. Kohlberg (Ed.), *Collected papers on moral development and moral education*. Harvard University: Moral Education and Research Foundation, 1973.

Bolen, L., & Torrance, E. *An experimental study of the influence of locus of control, dyadic interaction, and sex on creative thinking*. Paper presented at the meeting of the American Educational Research Association, San Francisco, April, 1976.

Borg, W. R. *An evaluation of ability grouping*. Cooperative Research Project, No. 577. Salt Lake City: Utah State University, 1964.

Botvin, G., & Murray, F. The efficacy of peer modeling and social conflict in the acquisition of conservation. *Child Development*, 1975, *45*, 796–799.

Boulding, E. Further Reflections on conflict management. In R. Kahn and E. Boulding (Eds.), *Power and conflict in organizations*. New York: Basic Books, 1964, 146–150.

Bower, S. *Early identification of emotionally handicapped children in school*. Springfield, Illinois: Thomas, 1960.

Bridgeman, D. *Cooperative, interdependent learning and its enhancement of role-taking in fifth grade students*. Paper presented at the meeting of the American Psychological Association, San Francisco, August, 1977.

Bronfenbrenner, U., Soviet methods of character education: Some implications for research. *Religious Education*, 1962, *57*(4, Res. Suppl.), 545–561.

Brown, B. Effects of the need to maintain face on interpersonal bargaining. *Journal of Experimental Social Psychology*, 1968, *4*, 107–122.

Burdick, H. A., & Burnes, A. J. A test of "strain toward symmetry" theories. *Journal of Abnormal and Social Psychology*, 1958, *57*, 367–369.

Chickering, A. *Education and Identity.* San Francisco: Jossey-Bass, 1969.

Cleland, S. *Influence of plant size on industrial relations.* Princeton, New Jersey: Princeton University Press, 1955.

Coleman, J. S. *The adolescent society.* New York: Macmillan, 1961.

Coleman, J. S., Campbell, E. Q., Hobson, C. J., McPartland, J., Mood, A. M., Weinfeld, F. D., & York, R. L. *Equality of educational opportunity.* Washington, D.C.: U.S. Office of Health, Education, & Welfare, 1966.

Colson, W. N. *Self-disclosure as a function of social approval.* Unpublished master's thesis, Howard University, 1968.

Combs, M., & Slaby, D. Social skills training with children. In B. Lahey & A. Kazdin (Eds.), *Advances in Clinical Child Psychology.* Vol. 1. New York: Plenum Press, 1977.

Cook, S. Interpersonal and attitudinal outcomes in cooperating interracial groups. *Journal of Research and Development in Education,* 1978, *12,* 97–113.

Cooper, L., Johnson, D. W., Johnson, R., & Wilderson, F. The effects of cooperation, competition, and individualization on cross-ethnic, cross-sex, and cross-ability friendships. *Journal of Social Psychology,* 1980.

Cowen, E., Pederson, A. Babijian, H., Izzo, L., & Trost, M. Long-term follow-up of early detected vulnerable children. *Journal of Consulting and Clinical Psychology,* 1973, *41*(3), 438–446.

Crain, R., & Weisman, C. *Discrimination, personality, and achievement: A survey of Northern Blacks.* New York: Seminar Press, 1972.

Crawford, J., & Haaland, G. Predecisional information seeking and subsequent conformity in the social influence process. *Journal of Personality and Social Psychology,* 1972, *23,* 112–119.

Crockenberg, S., & Nicolayev, J. *Stage transition in moral reasoning as related to conflict experienced in naturalistic settings.* Paper presented at the meeting of the Society for Research in Child Development, New Orleans, March, 1977.

Deutsch, M. An experimental study of the effects of cooperation and competition upon group process. *Human Relations,* 1949, *2,* 199–232.

Deutsch, M. Cooperation and trust: Some theoretical notes. In M. R. Jones (Ed.), *Nebraska symposium on motivation.* Lincoln, Nebraska: University of Nebraska Press, 1962, 275–320.

Deutsch, M. Conflicts: Productive and Destructive. *Journal of Social Issues,* 1969, *25,* 7–43.

Deutsch, M. *The resolution of conflict.* New Haven, Connecticut: Yale University Press, 1973.

DeVries, D. L., & Edwards, K. J. *Cooperation in the classroom: Towards a theory of alternative reward-task classroom structures.* Paper presented at the meeting of the American Educational Research Association, Chicago, Illinois, April, 1974.

DeVries, D. L., Edwards, K. J., & Wells, E. H. Teams-games-tournament in the social studies classroom: Effects on academic achievement, student attitudes, cognitive beliefs, and classroom climate. Report No. 173, Center for Social Organization of Schools. Baltimore: Johns Hopkins University, 1974.

DeVries, D. L., Muse, D., & Wells, E. H. The effects on students of working in cooperative groups: An exploratory study. Report No. 120, Center for Social Organization of Schools. Baltimore: Johns Hopkins University, 1971.

DeVries, D., & Slavin, R. Teams-games-tournaments: Review of ten classroom experiments. *Journal of Research and Development in Education,* 1978, *12,* 28–38.

Doise, W., & Mugny, G. Individual and collective conflicts of centrations in cognitive development. *European Journal of Social Psychology,* 1979, *9,* 105–108.

Doise, W., Mugny, G., & Perret-Clermont, A. Social interaction and cognitive development: Further evidence. *European Journal of Social Psychology,* 1976, *6,* 245–247.

Douglas, J. W. B. *The home and the school.* London: MacGibbon & Kee, 1964.

Dunnette, M. D., Campbell, J., & Jaastad, K. The effect of group participation on brainstorming effectiveness of two industrial samples. *Journal of Applied Psychology,* 1963, *47,* 30–37.

Eash, M. J. Grouping: What have we learned? *Educational Leadership*, 1961, *18*, 429–434.

Elseroad, H., & Goodman, S. *A survey of secondary school students' perceptions and attitudes towards use of drugs by teenagers: Parts I, II, III*. Rockville, Maryland: Montgomery County Public Schools, 1970.

Empey, L. T., & Rabow, J. The Provo experiment in delinquency rehabilitation. *American Sociological Review*, 1961, *26*, 679–695.

Fagot, B., & Patterson, G. An *in vivo* analysis of the reinforcing contingencies for sex-role behaviors in the preschool child. *Developmental Psyohology*, 1969, *1*(5), 563–568.

Falk, D., & Johnson, D. W. The effects of perspective-taking and egocentrism on problem solving in heterogeneous and homogeneous groups. *Journal of Social Psychology*, 1977, *102*, 63–72.

Feffer, M., & Suchotliff, L. Decentering implications of social interaction. *Journal of Personality and Social Psychology*, 1966, 4, 415–422.

Ferguson, N. *Peers as social agents*. Unpublished master's thesis. University of Minnesota, 1965.

Festinger, L. Informal social communication. *Psychological Review*, 1950, *57*, 271–282.

Festinger, L., & Maccoby, N. On resistance to persuasive communications. *Journal of Abnormal and Social Psychology*, 1964, *68*, 359–366.

Fiedler, F. E., Meuwese, W., and Oonk, S. An exploratory study of group creativity in laboratory tasks. *Acta Psychology*, 1961, *18*, 100–119.

Flavell, J. *The developmental psychology of Jean Piaget*. Princeton, New Jersey: Van Nostrand, 1963.

Flavell, J. *The development of role-taking and communication skills in children*. New York: Wiley, 1968.

Freedman, M. B. *The student and campus climates of learning*. Washington, D.C.: U.S. Department of Health, Education, and Welfare, 1967.

Fromm-Reichmann, F. *Principles of intensive psychotherapy*. Chicago: University of Chicago Press, 1950.

Furman, W. *Friendship selections and individual peer interactions: A new approach to sociometric research*. Paper presented at biennial meetings of the Society for Research in Child Development, New Orleans, 1977.

Furman, W., Rache, D., & Hartup, W. Social rehabilitation of low-interactive preschool children by peer intervention. *Child Development*, 1979, *50*, 915–922.

Garibaldi, A. *Cooperation, competition, and locus of control in Afro-American students*. Unpublished doctoral dissertation, University of Minnesota, 1976.

Geffner, R. *The effects of interdependent learning on self-esteem, interethnic relations, and inra-ethnic attitudes of elementary school children: A field experiment*. Unpublished doctoral dissertation, University of California at Santa Cruz, 1978.

Gerard, H., & Greenbaum, C. Attitudes toward an agent of uncertainty reduction. *Journal of Personality*, 1962, *30*, 485–495.

Ghiselli, E., & Lodahl, T. Patterns of managerial traits and group effectiveness. *Journal of Abnormal and Social Psychology*, 1958, *57*, 61–66.

Gibb, J. The effects of group size and of threat reduction upon certainty in a problem-solving situation. *American Psychologist*, 1951, *6*, 324.

Glass, G. & Smith, M. Meta-analysis of research on the relationship of class-size and achievement. San Francisco: Far West Laboratory for Educational Research and Development, Final Report, 1978.

Glidewell, J. C. *Group emotionality and productivity*. Unpublished doctoral dissertation, University of Chicago, 1953.

Goldman, M. A comparison of individual and group performance for varying combinations of initial ability. *Journal of Personality and Social Psychology*, 1965, *1*, 210–216

Goldberg, M. L., Passow, A. H., & Justman, J. *The effects of ability grouping*. New York: Teachers College Press, 1966.

Goode, E. *The marijuana smokers.* New York: Basic Books, 1970.

Gottman, J., Gonso, J., & Rasmussen, B. Social interaction, social competence, and friendship in children. *Child Development,* 1975, *45*(3), 709–718.

Graziano, W., French, D., Brownell, C., & Hartup, W. Peer interaction in same- and mixed-age triads in relation to chronological age and incentive condition. *Child Development,* 1976, *47*(3), 707–714.

Gronlund, N. *Sociometry in the classroom.* New York: Harper, 1959.

Gunderson, B., & Johnson, D. W. Promoting positive attitudes toward learning a foreign language by using cooperative learning groups. *Foreign Language Annuals,* 1980, *13,* 39–46.

Haines, D. B., & McKeachie, W. J. Cooperative versus Competitive Discussion Methods in Teaching Introductory Psychology. *Journal of Educational Psychology,* 1967, *58:* 386–390.

Hall, J., & Williams, M. S. A comparison of decision-making performances in established and ad hoc groups. *Journal of Personality and Social Psychology,* 1966, *3,* 214–222.

Hall, J., & Williams, M. S. Group dynamics training and improved decision making. *Journal of Applied Behavioral Science,* 1970, *6,* 39–68.

Hargreaves, D. *Social relations in a secondary school.* New York: Humanities Press, 1967.

Hartup, W. Peer interaction and the behavioral development of the individual child. In E. Schopler & R. Reichler (Eds.), *Psychopathology and child development.* New York: Plenum, 1976.

Hartup, W. Children and their friends. In M. McGurk (Ed.), *Childhood social development.* London: Methuen, 1978.

Hartup, W., Glazer, J., & Charlesworth, R. Peer reinforcement and sociometric status. *Child Development,* 1967, *38,* 1017–1024.

Haythorn, W. A., Couch, D. H., Haefner, D., Langham, P., & Carter, L. The behavior of authoritarian and equalitarian personalities in groups. *Human Relations,* 1956, *9,* 57–74.

Hoffman, L. R. Homogeneity of member personality and its effect on group problem-solving. *Journal of Abnormal and Social Psychology,* 1959, *58,* 27–32.

Hoffman, L. R., Harburg, E., & Maier, N. R. F. Differences and disagreement as factors in creative problem solving. *Journal of Abnormal and Social Psychology,* 1962, *64,* 206–214.

Hoffman, L. R., & Maier, N. R. F. Sex differences, sex composition, and group problem solving. *Journal of Abnormal and Social Psychology,* 1961, *63,* 453–456.

Hogan, R., & Henley, N. *A test of the empathy-effective communication hypothesis.* Report No. 84, Center for Social Organization of Schools. Baltimore: Johns Hopkins University, 1970.

Horowitz, F. The relationship of anxiety, self-concept, and sociometric status among 4th, 5th, and 6th grade children. *Journal of Abnormal and Social Psychology,* 1962, *65,* 212–214.

Hughes, E., Becker, H., & Geer, B. Student culture and academic effort. In N. Sanford (Ed.), *The American college.* New York: Wiley, 1962.

Hulten, B. H. *Games and teams: An effective combination in the classroom.* Paper presented at the American Educational Research Association Convention, Chicago, April 1974.

Husen, T., & Svensson, N. Pedagogic milieu and development of intellectual skills. *School Review,* 1960, *68,* 36–51.

Inagaki, K., & Hatano, G. Motivational influences on epistemic observation (in Japanese with English summary). *Japanese Journal of Educational Psychology,* 1968, *16,* 221–228.

Inagaki, K., & Hatano, G. Amplification of cognitive motivation and its effects on epistemic observation. *American Educational Research Journal,* 1977, *14,* 485–491.

Inhelder, B., & Sinclair, H. Learning cognitive structures. In P. H. Mussen, J. Langer, & M. Covington (Eds.), *Trends and issues in developmental psychology.* New York: Holt, Rinehart & Winston, 1969, 2–21.

Jackson, B. *Streaming: An education system in miniature.* London: Routledge & Kegan Paul, 1964.

Jessor, R. Predicting time of onset of marijuana use: A developmental study of high school youth. In D. Lettier (Ed.), *Predicting adolescent drug abuse.* Washington, D.C.: National Institute on Drug Abuse, 1975.

Jessor, R., Jessor, F., & Finney, J. A social psychology of marijuana use: Longitudinal studies of high school and college youth. *Journal of Personality and Social Psychology*, 1973, *26*, 1–15.

Johnson, D. W. *The social psychology of education*. New York: Holt, Rinehart & Winston, 1970.

Johnson, D. W. Role-reversal: A summary and review of the research. *International Journal of Group Tensions*, 1071, *1*, 318–334.

Johnson, D. W. Communication and the inducement of cooperative behavior in conflicts: A critical review. *Speech Monographs*, 1974, *41*, 64–78.

Johnson, D. W. Distribution and exchange of information in problem-solving dyads. *Communication Research*, 1977, *4*, 283–298.

Johnson, D. W. *Educational psychology*. Englewood Cliffs, New Jersey: Prentice-Hall, 1979.

Johnson, D. W. Constructive peer relationships, social development, and cooperative learning experiences: Implications for the prevention of drug abuse. *Journal of Drug Education*, 1980, *10*, 7–24.

Johnson, D. W., & Ahlgren, A. Relationship between student attitudes about cooperation and competition and attitudes toward schooling. *Journal of Educational Psychology*, 1976, *68*, 92–102.

Johnson, D. W., & Johnson, R. *Learning together and alone: Cooperation, competition, and individualization*. Englewood Cliffs, New Jersey: Prentice-Hall, 1975.

Johnson, D. W., & Johnson, R. (Eds.). Social interdependence within instruction. *Journal of Research and Development in Education*, 1978, *12*(1).

Johnson, D. W., Johnson, R., & Anderson, D. Relationship between student cooperative, competitive, and individualistic attitudes and attitudes toward schooling. *Journal of Psychology*, 1978, *100*, 183–199.

Johnson, D. W., Johnson, R., Johnson, J., & Anderson, D. The effects of cooperative vs. individualized instruction on student prosocial behavior, attitudes toward learning, and achievement. *Journal of Educational Psychology*, 1976, *68*, 446–452.

Johnson, D. W., Johnson, R., & Scott, L. The effects of cooperative and individualized instruction on student attitudes and achievement. *Journal of Social Psychology*, 1978, *104*, 207–216.

Johnson, D. W., Johnson, R., & Skon, L. Student achievement on different types of tasks under cooperative, competitive, and individualistic conditions. *Contemporary Educational Psychology*, 1979, *4*, 99–106.

Johnson, D. W., & Matross, R. The interpersonal influence of the psychotherapist. In A. Gurman & A. Razin (Eds.), *The effective therapist: A handbook*. Elmsford, New York: Pergamon Press, 1977.

Johnson, D. W., & Norem-Hebeisen, A. Attitudes toward interdependence among persons and psychological health. *Psychological Reports*, 1977, *40*, 843–850.

Johnson, D. W., Maruyama, G., Johnson, R., Nelson, D., & Skon, L. The effects of cooperative, competitive, and individualistic goal structures on achievement: A meta-analysis. University of Minnesota, *Psychological Bulletin*, 1980.

Johnson, D. W., Skon, L., & Johnson, R. Effects of cooperative, competitive, and individualistic conditions on students' problem-solving performance. *American Educational Research Journal*, 1980, *17*, 83–94.

Johnson, R., & Johnson, D. W. Type of task and student achievement and attitudes in interpersonal cooperation, competition, and individualization. *Journal of Social Psychology*, 1979, *108*, 37–48.

Johnson, R., Johnson, D. W., & Tauer, M. Effects of cooperative, competitive, and individualistic goal structures on students' achievement and attitudes. *Journal of Psychology*, 1979, *102*, 191–198.

Johnson, R., Rynders, J., Johnson, D. W., Schmidt, B., & Haider, S. Producing positive interaction between handicapped and nonhandicapped teenagers through cooperative goal structuring: Implications for mainstreaming. *American Educational Research Journal*, 1979, *16*, 161–168.

Josephson, E. Trends in adolescent marijuana use. In E. Josephson & E. Carroll (Eds.), *Drug use: Epidemiological and sociological approaches*. New York: Halstead-Wiley, 1974.

Judd, C. Cognitive effects of attitude conflict resolution. *Conflict Resolution*, 1978, *22*, 483–498.

Jung, C., & DeLaszlo, V. (Eds.). *The basic writings of C. G. Jung*. New York: Random House, 1959.

Kandel, D. Some comments on the relationship of selected criteria variables to adolescent illicit drug use. In D. Lettier (Ed.), *Predicting adolescent drug abuse*. Washington, D.C.: National Institute on Drug Abuse, 1975.

Kaplan, M. Discussion polarization effects in a modern jury decision paradigm: Informational influences. *Sociometry*, 1977, *40*, 262–271.

Kaplan, M., & Miller, C. Judgments and group discussion: Effect of presentation and memory factors on polarization. *Sociometry*, 1977, *40*, 337–343.

Katz, D. Morale and motivation in industry. In W. Dennis (Eds.), *Current trends in industrial psychology*. Pittsburgh: University of Pittsburgh Press, 1949, 145–171.

Keasey, C. Social participation as a factor in moral development of preadolescents. *Developmental Psychology*, 1971, *5*(2), 216–220.

Keasey, C. Experimentally induced changes in moral opinions and reasoning. *Journal of Personality and Social Psychology*, 1973, *26*, 30–38.

Kett, J. History of age grouping in America. In J. Coleman et al. (Eds.), *Youth: Transition to adulthood*. Chicago: University of Chicago Press, 1974, 9–29.

Kinsey, A., Pomeroy, W., & Martin, C. *Sexual behavior in the human male*. Philadelphia: W. B. Saunders, 1948.

Kobasigawa, A. Inhibitory and disinhibitory effects of models on sex-inappropriate behavior in children. *Psychologia*, 1968, *11* (1–2), 86–96.

Koch, H. The modification of unsocialness in preschool children. *Psychological Bulletin*, 1935, *32*, 700–701.

Kohlberg, L. Stage and sequence: The cognitive-developmental approach to socialization. In D. A. Goslin (Ed.), *Handbook of socialization theory and research*. Chicago: Rand McNally, 1969, 347–480.

Kohn, M., & Clausen, J. Social isolation and schizophrenia. *American Sociological Review*, 1955, *20*(3), 265–273.

Kohn, M., & Rosman, B. A social competence scale and symptom checklist for the preschool child: Factor dimensions, their cross-instrument generality, and longitudinal persistence. *Developmental Psychology*, 1972, *6*, 445–452.

Kuhn, D., Langer, J., Kohlberg, L., & Haan, N. S. The development of formal operations in logical and moral judgment. *Genetic Psychological Monographs*, 1977, *55*, 97–188.

Lacy, W. Interpersonal relationships as mediators of structural effects: College student socialization in a traditional and experimental university environment. *Sociology of Education*, 1978, *51*, 201–211.

Laughlin, P. Ability and group problem solving. *Journal of Research and Development in Education*, 1978, *12*, 114–120.

Laughlin, P., & Bitz, D. Individual versus dyadic performance on a disjunctive task as a function of initial ability level. *Journal of Personality and Social Psychology*, 1975, *31*, 487–496.

Laughlin, P., & Johnson, H. Group and individual performance on a complementary task as a function of initial ability level. *Journal of Experimental Social Psychology*, 1966, *2*, 407–414.

Laughlin, P., Keer, N., Davis, J., Haiff, H., Marciniak, K. Group size, member ability, and social decision schemes on an intellective task. *Journal of Personality and Social Psychology*, 1975, *31*, 522–535.

Laughlin, P., & Branch, L. Individual versus tetradic performance on a complementary task as a function of initial ability level. *Organizational Behavior and Human Performance*, 1972, *8*, 201–216.

Laughlin, P., Branch, L., & Johnson, H. Individual versus triadic performance on a unidimensional complementary task as a function of initial ability level. *Journal of Personality and Social Psychology*, 1969, *12*, 144–150.

Laughlin, P., & McGlynn, R. Cooperative versus competitive concept attainment as a function of sex and stimulus display. *Journal of Personality and Social Psychology*, 1967, *7*, 398–402.

Lavenhar, M., Wolfson, E., Shesset, A., Einstein, S., & Louria, D. A survey of drug abuse in six suburban New Jersey high schools: II Characteristics of drug users and nonusers. In S. Einstein and S. Allen (Eds.), *Student drug survey*. Farmingdale, New York: Baywood, 1972.

LeFurgy, W., & Woloshin, G. Immediate and long-term effects of experimentally induced social influence in the modification of adolescents' moral judgments. *Journal of Personality and Social Psychology*, 1969, *12*, 104–110.

Lewis, M., & Rosenblum, L. (Eds.). *Friendship and peer relations*. New York: Wiley, 1975.

Lipitt, R. The effects of authoritarian and external controls on the development of mental health. In A. H. Ojemann (Ed.), *Recent research on creative approaches to environmental stress*. Iowa City, Iowa: University of Iowa Press, 1964.

Lippitt, R., & Gold, M. Classroom social structure as a mental health problem. *Journal of Social Issues*, 1959, *15*, 40–58.

Lorber, N. Inadequate social acceptance and disruptive classroom behavior. *Journal of Educational Research*, 1966, *59*, 360–362.

Lougee, M. *Children's imitation of younger and older peers*. Unpublished doctoral dissertation, University of Minnesota, 1977.

Lowry, N., & Johnson, D. W. The effects of controversy on students' motivation and learning. University of Minnesota, submitted for publication, 1980.

May, R. *Love and will*. New York: Norton, 1969.

Maier, N. R. F., & Hoffman, L. R. Financial incentives and group decision in motivating change. *Journal of Social Psychology*, 1964, *64*, 369–378.

Maier, N., & Solem, A. The contributions of a discussion leader to the quality of group thinking: The effective use of minority opinions. *Human Relations*, 1952, *5*, 277–288.

Maitland, D., & Goldman, J. Moral judgment as a function of peer group interaction. *Journal of Personality and Social Psychology*, 1974, *30*, 699–704.

McCorkle, L. W., Elias, A., & Bixby, F. L. *The highfields story: A unique experiment in the treatment of juvenile delinquency*. New York: Holt, 1958.

McPartland, J. *School authority systems and student motivation*. Paper presented at the Annual Meeting of the American Educational Research Association, New York, April, 1977.

Mensh, I., & Glidewell, J. Children's perceptions of relationships among their family and friends. *Journal of Experimental Education*, 1958, *27*, 23–39.

Milgram, S. Liberating effects of group pressure. *Journal of Personality and Social Psychology*, 1965, *1*, 127–234.

Miller, S. A., & Brownell, C. A. Peers, persuasion, and Piaget: dyadic interaction between conservers and nonconservers. *Child Development*, 1975, *46*, 992–997.

Millman, J., & Johnson, M. Jr. Relation of section variance to achievement gains in English and mathematics in grades 7 and 8. *American Educational Research Journal*, 1964, *1*, 47–51.

Money, J., & Ehrhardt, A. *Man and woman, boy and girl*. Baltimore: Johns Hopkins University Press, 1972.

Mugny, G., & Doise, W. Socio-cognitive conflict and structure of individual and collective permances. *European Journal of Social Psychology*, 1978, *8*, 181–192.

Murray, H. A. Thematic Apperception Test in various. *Military clinical psychology*. Washington, D.C.: U.S. Government Printing Office, 1951, 59–71.

Murray, F. Acquisition of conservation through social interaction. *Developmental Psychology*, 1972, *6*, 1–6.

Murray, F., Ames, G., & Botvin, G. Acquisition of conservation through cognitive dissonance. *Journal of Educational Psychology*, 1977, *69*, 519–527.

Newcomb, T. M. Attitude development as a function of reference groups: The Bennington study. In G. E. Swanson, T. M. Newcomb, & E. L. Hartley (Eds.), *Readings in social psychology* (rev. ed.). New York: Holt, Rinehart & Winston, 1952.

Newcomb, T., Brown, D., Kulik, J., Reimer, D., & Revell, W. The University of Michigan's residential college. In P. Dressel (Ed.), *The new colleges: Toward an appraisal.* The American College Testing Program and the Amerioan Association for Higher Education, Monograph No. 7. Iowa City, Iowa: The American College Testing Program, 1971, 99-142.

Newcomb, T., Brown, D., Kulik, J., Revell, W., & Reimer. Self-selection and change. In J. Gaff (Ed.), *The cluster college.* San Francisco: Jossey-Bass, 1970, 137-160.

Noonan-Wagner, M. P. Intimacy of self-disclosure and response processes as factors affecting the development of interpersonal relationships. Unpublished doctoral dissertation, University of Minnesota, 1975.

Norem-Hebeisen, A., & Johnson, D. W. The relationship between cooperative, competitive, and individualistic attitudes and differentiated aspects of self-esteem. University of Minnesota, mimeographed report, submitted for publication, 1980.

O'Dell, J. Group size and emotional interaction. *Journal of Personality and Social Psychology,* 1968, *8,* 75-78.

Olson, M. Ways to achieve quality in school classrooms: Some definitive answers. *Phi Delta Kappan,* 1971, 53, 63-65; 448-450.

Orth, C. *Social structure and learning climate: The first year at the Harvard Business School.* Boston: Harvard Business School, 1963.

Page, M. The modification of ascendant behavior in preschool children. University of Iowa Studies in Child Welfare, Vol. 12, No. 3, 1936.

Patterson, G., & Cobb, J. A dyadic analysis of "aggressive" behaviors. In J. Hill (Ed.), *Minnesota symposia on child development.* Vol. 5. Minneapolis: University of Minnesota Press, 1971.

Patterson, G., Littman, R., & Bricker, W. Assertive behavior in children: A step toward a theory of aggression. *Monographs of the society for research in child development,* 1967, 32,(113).

Peifer, M. The effects of varying age-grade status of models on the imitative behavior of six-year-old boys. Unpublished doctoral dissertation, University of Delaware, 1971.

Pelz, D. C. Some social factors related to performance in a research organization. *Administrative Science Quarterly,* 1956, *1,* 310-325.

Perret-Clermont, A. *Social interaction and cognitive development in children.* London: Academic Press, in press.

Peters, R., & Torrance, E. Dyadic interaction of preschool children and performance on a construction task. *Psychological Reports,* 1972, *30,* 747-750.

Piaget, J. *The moral judgment of the child.* Glencoe, Illinois: The Free Press, 1932, 1948.

Piaget, J. *The psychology of intelliger* . New York: Harcourt, 1950.

Pilnick, S., Elias, A., & Clapp, N. W. The Essexfields concept: A new approach to the social treatment of juvenile delinquents. *Journal of Applied Behavioral Science,* 1966, *2,* 109-130.

Ramsøy, N. R. *American high schools at mid-century.* New York: Bureau of Applied Social Research, Columbia University, 1961.

Rest, J., Turiel, E., & Kohlberg, L. Relations between level of moral judgment and preference and comprehension of the moral judgment of others. *Journal of Personality,* 1969, *37,* 225-252.

Roethlisberger, F. J., & Dickson, W. J. *Management and the worker.* Cambridge, Massachusetts: Harvard University Press, 1939.

Roff, M. Childhood social interaction and young adult bad conduct. *Journal of Abnormal and Social Psychology,* 1961, *63*(2), 333-337.

Roff, M. Childhood social interaction and young adult psychosis. *Journal of Clinical Psychology,* 1963, *19,* 152-157.

Roff, M., Sells, S., & Golden, M. *Social adjustment and personality development in children.* Minneapolis: University of Minnesota Press, 1972.

Rogers, V. R. *Teaching in the British primary schools.* London: Macmillan, 1970.

Rubin, J., & Brown, B. *The social psychology of bargaining and negotiation.* New York: Academic Press, 1975.

Rynders, J., Johnson, R., Johnson, D. W., & Schmidt, B. Effects of cooperative goal structuring in producing positive interaction between Down's Syndrome and nonhandicapped teenagers: Implications for mainstreaming. *American Journal of Mental Deficiencies,* in press.

Schmuck, R. Some relationships of peer liking patterns in the classroom to pupil attitudes and achievement. *School Review,* 1963, *71,* 337–359.

Schmuck, R. Some aspects of classroom social climate. *Psychology in the School,* 1966, *3,* 59–65.

Schmuck, R. Influence of the peer group. In G. Lesser (Ed.), *Psychology and educational practice.* Glenview, Illinois: Scott, Foresman, 1971, 502–529.

Schmuck, R. Applications of social psychology to classroom life. In D. Bar-Tal & L. Saxe (Eds.), *Social psychology of education.* Washington, D.C.: Hemisphere, 1978, 231–256.

Sermat, V., & Smyth, M. Content analysis of verbal communication in the development of a relationship: Conditions influencing self-disclosure. *Journal of Personality and Social Psychology,* 1973, *26,* 332–346.

Shaw, M. E. A note concerning homogeneity of membership and group problem-solving. *Journal of Abnormal and Social Psychology,* 1960, *60,* 448–450.

Sherif, M. *The psychology of social norms.* New York: Octagon, 193[illegible]

Sigel, I. E., & Hooper, F. H. (Eds.). *Logical thinking in children: Research based on Piaget's theory.* New York: Holt, Rinehart & Winston, 1968.

Silverman, I. W., & Geiringer, E. Dyadic interaction and conservation induction: A test of Piaget's equilibration model. *Child Development,* 1973, *44,* 815–820.

Silverman, I. W., & Stone, J. M. Modifying cognitive functioning through participation in a problem-solving group. *Journal of Educational Psychology,* 1972, *63,* 603–608.

Sinclair, H. Developmental psycho-linguistics. In D. Elkind & J. H. Flavell (Eds.), *Studies in cognitive development: Essays in honor of Jean Piaget.* New York: Oxford University Press, 1969, 315–336.

Sitkei, E. The effects of class size: A review of the research. Washington, D.C.: U.S. Department of Health, Education, and Welfare, 1968. (ERIC CED 043124, EA 003 074)

Skon, L., Johnson, D. W., & Johnson, R. Cooperative peer interaction versus individual competition and individualistic efforts: Effects on the acquisition of cognitive reasoning strategies. University of Minnesota, submitted for publication, 1980.

Slater, P. Contrasting correlates of group size. *Sociometry,* 1958, *21,* 129–139.

Slavin, R. Students teams and achievement divisions. *Journal of Research and Development in Education,* 1978, *12,*

Smedslund, J. The acquisition of conservation of substance and weight in children: II. External Reinforcement of conservation and weight and of the operations of addition and subtraction. *Scandinavian Journal of Psychology,* 1961, *2,* 71–84a.

Smedslund, J. The acquisition of conservation of substance and weight in children: III. Extinction of conservation of weight acquired 'normally' and by means of empirical controls on a balance. *Scandinavian Journal of Psychology,* 1961, *2,* 85–87b.

Smedslund, J. The acquisition of conservation of substance and weight in children: V. Practice in conflict situations without external reinforcement. *Scandinavian Journal of Psychology,* 1961, *2,* 156–160c.

Smith, L. The concurrent validity of six personality and adjustment tests for children. *Psychological Monographs,* 1958, *77*(457).

Soar, R. Follow-through classroom process measurement and pupil growth. Final report. Gainesville, Florida: College of Edvcation, University of Florida, 1973.

Spilerman, S. Raising academic motivation in lower class adolescents: A convergence of two research traditions. *Sociology of Education,* 1971, *44,* 103-118.

Smith, K., Johnson, D. W., & Johnson, R. The effects of controversy on the motivation and achievement of students. University of Minnesota, submitted for publication, 1980.

Stallings, J., & Kaskowitz, D. *Follow-through classroom observation evaluation.* Menlo Park, California Stanford Research Institute, 1974.

Stanley, C., & Gottman, J. Popularity, social structure, and social interaction in children. Manuscript submitted for publication, 1976.

Steiner, I. *Group process and productivity.* New York: Academic Press, 1972.

Stephan, F., & Mishler, E. The distribution of participation in small groups: An exponential approximation. *American Sociological Review,* 1952, *17,* 598-608.

Sullivan, H. S. *The interpersonal theory of psychiatry.* New York: Norton, 1953.

Svensson, N. *Ability grouping and scholastic achievement.* Stockholm: Almqvist & Wiksell, 1962.

Taylor, D. A., Altman, I. & Sorrentino, R. Interpersonal exchange as a function of rewards and costs and situational factors: Expectancy confirmation-disconfirmation. *Journal of Experimental Social Psychology,* 1969, *5,* 324-339.

Thelen, M., & Kirkland, K. On status and being imitated: Effects on reciprocal imitation and attraction. *Journal of Personality and Social Psychology,* 1976, *33*(6), 691-697.

Thomas, E. J., & Fink, C. Effects of group size. *Psychological Bulletin,* 1963, *60,* 371-384.

Tillman, R., & Hull, J. H. Is ability grouping taking schools in the wrong direction? *Nations' Schools,* 1964, *73,* 70-71; 128-129.

Tjosvold, D. Threat as a low-power person's strategy in bargaining: Social face and tangible outcomes. *International Journal of Group Tensions,* 1974, *4,* 494-510.

Tjosvold, D., & Johnson, D. W. The effects of controversy on cognitive perspective-taking. *Journal of Educational Psychology,* 1977, *69,* 679-685.

Tjosvold, D., & Johnson, D. W. Controversy within a cooperative or competitive context and cognitive perspective-taking. *Contemporary Educational Psychology,* 1978, *3,* 376-386.

Tjosvold, D., Johnson, D. W., & Lerner, J. The effects of affirmation of one's competence, personal acceptance, and disconfirmation of one's competence on incorporation of opposing information in problem-solving situations. *Journal of Social Psychology,* in press.

Tjosvold, D., Johnson, D. W., & Fabrey, L. The effects of controversy and defensiveness on cognitive perspective-taking. Pennsylvania State University, submitted for publication, 1980.

Tjosvold, D., Marino, P., & Johnson, D. W. Cooperation and competition and student acceptance of inquiry and didactic teaching. *Journal of Research in Science Teaching,* 1977, *14,* 281-288.

Torrance, E. P. Can grouping control social stress in creative activity? *Elementary School Journal,* 1961, *62,* 139-145.

Torrance, E. Influence of dyadic interaction on creative functioning. *Psychological Reports,* 1970, *26,* 391-394.

Torrance, E. Stimulation, enjoyment, and originality in dyadic creativity. *Journal of Educational Psychology,* 1971, *62,* 45-48.

Torrance, E. *Dyadic interaction in creative thinking and problem solving.* Paper read at the meeting of the American Educational Research Association, New Orleans, February 1973.

Triandis, H., Bass, A., Ewen, R., & Mikesele, E. Teaching creativity as a function of the creativity of the members. *Journal of Applied Psychology,* 1963, *47,* 104-110.

Triandis, H. C., Hall, E. R., & Ewen, R. B. Member heterogeneity and dyadic creativity. *Human Relations,* 1965, *18,* 33-55.

Tuckman, B. Group composition and group performance on structure and unstructured tasks. *Journal of Experimental Social Psychology,* 1967, *3,* 25-40.

Turiel, E. An experimental test of the sequentiality of developmental stages in the child's moral judgment. *Journal of Personality and Social Psychology*, 1966, *3*, 611–618.

Turiel, E. Stage transition in moral development. In R. Travers (Ed.), *Second handbook of research on teaching*. Chicago: Rand McNally, 1973, 732–758.

Turner, R. H. *The social context of ambition*. San Francisco: Chandler, 1964.

Van Egmond, E. *Social interrelationship skills and effective utilization of intelligence in the classroom*. Unpublished doctoral dissertation, University of Minnesota, 1960.

Vinokur, A., & Burnstein, E. Effects of partially shared persuasive arguments on group-induced shifts. *Journal of Personality and Social Psychology*, 1974, *29*, 305–315.

Vreeland, R., & Bidwell, C. Organizational effects in students' attitudes: A study of the Harvard houses. *Sociology of Education*, 1965, *38*, 233–250.

Wahler, R. Child–child interactions in five field settings: Some experimental analysis. *Journal of Experimental Child Psychology*, 1967, *5*(2), 278–293.

Wallace, W. *Student culture: Social structure and continuity in a liberal arts college*. Chicago: Aldine, 1966.

Wallach, L., & Sprott, R. L. Inducing number conservation in children. *Child Development*, 1964, *35*, 1057–1071.

Wallach, L., Wall, A. J., & Anderson, L. Number conservation: The roles of reversibility, addition-subtraction, and misleading perceptual cues. *Child Development*, 1967, *38*, 425–442.

Watson, G., & Johnson, D. W. *Social psychology: issues and insights*. Philadelphia: Lippincott, 1972.

Wheeler, R., & Ryan, F. Effects of cooperative and competitive classroom environments on the attitudes and achievement of elementary school students engaged in social studies inquiry activities. *Journal of Educational Psychology*, 1973, *65*, 402–407.

Whiting, B., & Whiting, J. *Children of six cultures: A psychocultural analysis*. Cambridge, Massachusetts: Harvard University Press, 1975.

Wilson, A. B. Residential segregation of social classes and aspirations of high school boys. *American Sociological Review*, 1959, *14*, 836–845.

Wilson, A. B. Social stratification and academic achievement. In A. H. Passow (Ed.), *Education in depressed areas*. New York: Teachers College Press, Columbia University, 1963, 217–235.

Wodarski, J. S., Hamblin, R. L., Buckholdt, D. R., & Ferritor, D. E. Individual consequences versus different shared consequences contingent on the performance of low-achieving group members. *Journal of Applied Social Psychology*, 1973, *3*, 276–290.

Wohlwill, J. F., & Lowe, R. C. Experimental analysis of the development of the conservation of number. *Child Development*, 1962, *33*, 153–167.

Worchel, P., & McCormick, B. Self-concept and dissonance reduction. *Journal of Personality*, 1963, *31*, 589–599.

Yablonsky, L. The anticriminal society: Synanon. *Federal Probation*, 1962, *26*, 50–57.

Yates, A. (Ed.). *Grouping in education*. New York: Wiley, 1966.

Ziller, R. Scales of judgment: a determinant of the accuracy of group decisions. *Human Relations*, 1955, *8*, 153–164.

Ziller, R. C., & Exline, R. V. Some consequences of age heterogeneity in decision-making groups. *Sociometry*, 1958, *21*, 198–211.

APPENDIX B

THE SOCIAL INTEGRATION OF HANDICAPPED STUDENTS INTO THE MAINSTREAM

The Social Integration Of Handicapped Students Into The Mainstream

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> At the door of the classroom Carl stopped and glanced anxiously at the busy hum of students clearing their desks in preparation for math. The special education teacher escorting Carl to the classroom turned and looked intently at the child, a trace of anxiety appearing on her face also as she took Carl by the hand and entered the classroom. Carl unobtrusively slipped into a desk at the back of the classroom as the special education teacher chatted for a moment with the regular classroom teacher.

Will I be liked? Will I be rejected? Will other students ignore me? These are questions that Carl is asking himself. Such questions are at the heart of successful mainstreaming—the integration of students with intellectual, emotional, and physical handicaps into the regular classroom.

For the past several years, we have been investigating procedures regular classroom teachers can use to insure that mainstreaming is a success. We begin with three assumptions: (a) that it is unfair and unrealistic to ask regular classroom teachers to become experts in special education; (b) that any teaching strategy implemented in the regular classroom to facilitate the integration of handicapped students should benefit the education of all students, not just those with special learning needs; and (c) that building positive relationships between handicapped and normal-progress students is the first priority of mainstreaming. It is when handicapped students are liked, accepted, and chosen as friends that mainstreaming becomes a positive influence on the lives of both handicapped and normal-progress students.

Why is the integration of handicapped students into the regular classroom taking place? The purpose is to structure the classroom learning in such a way that

1. friendships are formed between handicapped and normal-progress students;
2. the social skills of all students are promoted;
3. the self-esteem of all students is enhanced, and
4. the achievement of all students is maximized.

Sound great? Can it be accomplished by just placing handicapped students in the regular classroom and letting life proceed as always? No, it can't.

Placing handicapped students in the regular classroom is the beginning of an opportunity. But, like all opportunities, it carries the risk of making things worse as well as the possibility of making things better. If things go badly, handicapped students will be stigmatized, stereotyped, and rejected. Even worse, they may be ignored or treated with the paternalistic care one reserves for pets. If things go well, however, true friendships and positive relationships may develop between the normal-progress and handicapped students. What does the regular classroom teacher do to ensure that mainstreaming goes well? The answer goes beyond explanations of the law;

additional forms to be completed; extra meetings to attend; or lectures on various learning, emotional, and physical disabilities.

What is needed is an understanding of how the process of acceptance works in a classroom setting and an understanding of the specified teaching strategies that help to build positive relationships between handicapped and normal-progress students as they attend the regular classroom together. This chapter defines mainstreaming, recognizing the relationship between handicapped and nonhandicapped students as a key issue; presents the process of social judgment as highlighting the difference between acceptance and rejection of handicapped students; and details the specific strategies for setting up heterogeneous cooperative groups of handicapped and nonhandicapped students to encourage acceptance, friendships, and higher achievement. First, the rationale for mainstreaming and a definition are necessary.

Rationale for Mainstreaming

The current emphasis on mainstreaming was brought about by a series of factors including the following (Telford & Sawrey, 1977):

1. The failure of research studies to establish the effectiveness of special classes for the handicapped.
2. A realization of the inadequacy of medically and psychologically defined diagnostic categories for educational purposes.
3. Evidence that factors irrelevant to education and aptitude, such as social class, race, personality, and manageability, were influencing special class placement.
4. Documentation of the deleterious effects of stigmatization.

In addition, Johnson (1979) noted that all students need equal access to school resources, and that the healthy social development of handicapped students requires that they be part of the mainstream of the social life of same age nonhandicapped children and adolescents.

Access to Resources

School resources include both the human and material elements that can influence achievement and socialization (Johnson, 1979). These resources may be access to highly motivated peers, specific socialization processes, counselors, or aspects of the curriculum and instructional programs. One of the most important resources within the school is peers who encourage educational aspirations, achievement, and appropriate social behavior. By placing students in different classes or in different tracks during high school, educators determine who has access to whom in terms of student-student relationships. Assignment to different tracks in high school has been found to influence directly and indirectly educational aspirations, academic self-concept, orientation toward intellectualism, who is picked as friends, and who one wants to be like (Alexander & McDill, 1976; Karweit, 1976). Even encouragement to use school counselors and actual visits to counselors has been found to relate with whether one is placed in a college preparatory track (Heyns, 1974).

Long-Term Social Development

In order to develop psychologically, handicapped students must have the normal life experiences of members of our society, such as going to parties and dances, taking buses, shopping, and dating (Johnson, 1979). These experiences usually are obtained in an adolescent peer group as part of the process of adjusting to physical and social maturity. If handicapped children and adolescents are segregated throughout their school lives, how will they develop the friends they need during adolescence? Gordon (1969) noted that one of the most serious problems handicapped children manifest, particularly as they grow into adolescence, is the lack of friends. He implied that one cause for the lack of friends is the lack of social skills gained in day-to-day interaction with nonhandicapped peers. Siegel (1969) considered the major characteristic of older populations of handicapped students to be their lack of social skills. The isolation from and lack of positive interaction with nonhandicapped peers is, perhaps, the most destructive aspect of the lives of handicapped students.

Integration into the Mainstream

Any definition that does not include the premise that mainstreaming should be conducted to maximize the likelihood of handicapped students' access to constructive interactions with nonhandicapped peers and normal life experiences is incomplete. Placing a handicapped student in the corner of a classroom and providing individualistic learning experiences is not effective mainstreaming. Mainstreaming is successful only if it includes the integration of handicapped students into friendships with nonhandicapped peers (Johnson, 1979; Johnson & Johnson, 1978). Thus, a complete definition of mainstreaming is as follows:

> Mainstreaming is the provision of an appropriate educational opportunity for all handicapped students in the least

> restrictive alternative, based on individualized educational programs, with procedural safeguards and parent involvement, and aimed at providing handicapped students with access to and constructive interaction with nonhandicapped peers.

What does the mainstreamed classroom look like? Exceptional students spend most of the day in regular classrooms, leaving occasionally to go to a resource room or resource center for educational assessments, individual tutoring, or small-group instruction, or to pick up and deliver assignments prepared by the resource teacher but completed in the regular classroom. The resource teacher and the regular classroom teacher, working as a team, may schedule a student to use the resource center for a few minutes or several hours, depending on the student's learning needs. The regular classroom teacher and the resource teacher share responsibility for the learning and socialization of exceptional students, and both take an active instructional role. The exceptional students spend more than half the day in regular classes. While the regular classroom teacher is responsible for grades and report cards, she usually consults with the resource teacher in grading exceptional students.

Some problems with mainstreaming have yet to be solved. Too often, special education programs are dropped and students simply are returned to the same classrooms from which they were originally referred for special help. Such a pactice does not allow for the fact that these students have learning problems and, in the past, failed to learn in the regular classroom. It is not doing handicapped students a favor to throw them back into a pool of normal learners and let them sink or swim there. Regular classroom teachers are not receiving additional training in the instructional strategies necessary for effective mainstreaming.

One other point needs to be made about students' access to each other in the classroom: It is effective and proper for classroom teachers to hold a broad definition of mainstreaming when it comes to interactions within the classroom. The "very quiet" student sitting by the window, the very bright child sitting near the front, the disruptive student at the back, and the responsible, "average" student seated in the middle of the room all need to be mainstreamed in the classroom setting right along with handicapped students. All students gain by being part of a classroom climate emphasizing the building of accepting, helping and caring relationships. Learning outcomes for all students are discussed briefly in a later section of this chapter. For the moment, let us turn to one of the initial problems in mainstreaming—the attitudes of nonhandicapped students toward their handicapped peers.

Attitudes Toward Handicapped Peers

Underlying the movement to integrate handicapped students into the regular classroom are the assumptions that labeling will be reduced when handicapped students are not physically separated from the regular classroom (Flynn, 1974), the stigma attached to handicaps will be reduced (Dunn, 1968), negative stereotyping will be diminished through increased contact between handicapped and nonhandicapped students (Christopolos & Renz, 1969; Fischer & Rizzo, 1974), and handicapped students will have equal access to the social resources required for maximal achievement and healthy social and cognitive development (Johnson, 1979a). Whether or not these goals are achieved depends on the pattern of interaction that teachers structure between handicapped and nonhandicapped students.

Much of the traditional research on attitude change has focused on isolated and temporary experiences in which people are exposed to a single communication aimed at influencing them in a certain way. The mainstreaming situation, in which students interact with each other over a period of months and even years, is considerably more complex. Negative attitudes toward handicapped peers exist before mainstreaming begins and first impressions and the labeling process reinforce such stigmatization; but it is the actual interaction between handicapped and nonhandicapped students that determines whether a process of acceptance or rejection will mitigate or strengthen the rejection of handicapped peers.

The process of making social judgments about handicapped peers is reflected in Figure 1 and can be described as follows:

1. Original negative attitudes are based on the general stigmatization of handicaps by society at large.
2. An initial impression is made on the basis of initial actions and perceived characteristics of the handicapped students.
3. Categories classifying the handicapped students' characteristics are formed with labels being attached to each category.
4. Interaction with the handicapped students occurs; it is of great importance whether that interaction takes place within a context of positive, negative, or no interdependence.

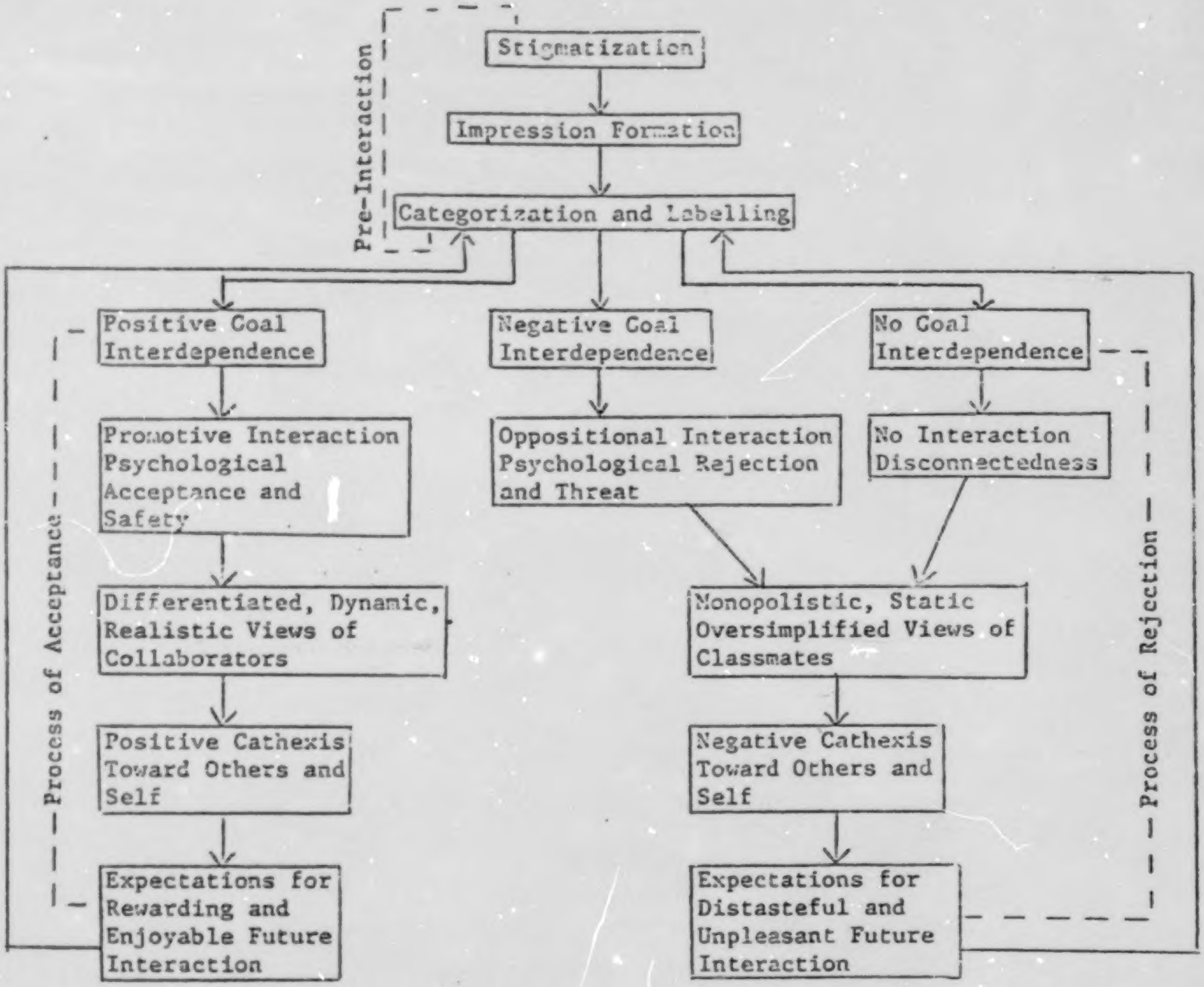
Pre-Interaction
Stigmatization
Impression Formation
Categorization and Labelling
Positive Goal Interdependence
Negative Goal Interdependence
No Goal Interdependence
Promotive Interaction Psychological Acceptance and Safety
Oppositional Interaction Psychological Rejection and Threat
No Interaction Disconnectedness
Differentiated, Dynamic, Realistic Views of Collaborators
Monopolistic, Static Oversimplified Views of Classmates
Positive Cathexis Toward Others and Self
Negative Cathexis Toward Others and Self
Expectations for Rewarding and Enjoyable Future Interaction
Expectations for Distasteful and Unpleasant Future Interaction
Process of Acceptance
Process of Rejection

Figure 1. Social Judgment Process

5. Depending on the social context within which interaction takes place, a process of acceptance or rejection occurs.
6. The process of acceptance results from interaction within a context of positive goal interdependence, which furthers promotive interaction and feelings of acceptance and psychological safety, differentiated, dynamic, realistic views of collaborators and self, positive cathexis toward others and self, and expectations for rewarding and enjoyable future interaction with classmates.
7. The process of rejection results from interaction within a context of negative or no-goal interdependence; negative goal interdependence promotes oppositional interaction and feelings of psychological rejection and threat, and no-goal interdependence results in no interaction with peers; both lead to monopolistic, static, and stereotyped views of classmates; negative cathexis toward others and self; and expectations for distasteful and unpleasant future interaction with other students.
8. With further interaction, the process of acceptance or rejection may be repeated.

A closer look at key aspects of this process is warranted.

What is Stigmatization?

Goffman (1963) defined a stigma as a deeply discrediting attribute of an individual. Goffman's work represents the only major theoretical work in the area of stigmatization. He distinguished between an individual's "virtual social identify," which is the character imputed to the individual by society, and "actual social identity," which reflects the person's true identity. It is virtual social identity that carries the discrediting connotation. According to Goffman, three types of stigma can be identified: (a) physical disabilities, (b) character disorders, and (c) tribal stigmas, such as ethnic membership or religious affiliation which is transmitted through the family and affects all members. When individuals have a stigma that is highly visible, simple proximity to others causes their stigma to be known. And certain stigmas (such as mental retardation) may be viewed by nonhandicapped students as disqualifying the handicapped students from certain activities (e.g., academic work). To the extent that a handicap disqualifies students from major activities in the classroom, it influences the handicapped students' acceptability to nonhandicapped peers. Finally, some stigmas may interfere with interactions with nonhandicapped peers (e.g., deafness, blindness, and nonambulance), thus being quite obtrusive and leading to a lack of opportunity to reduce rejection. These three aspects of the visibility of the stigma (readily apparent, disqualifying, and obtrusive) all affect the strength of the feelings of nonhandicapped students (Abelson, 1976). For most handicapped students, stigmatization has taken place before mainstreaming occurs.

When handicapped students are first placed in the regular classroom, there can be little doubt that nonhandicapped peers will originally have negative attitudes toward them that reflects the process of stigmatization. A variety of research studies indicates that students who are perceived as handicapped by nonhandicapped students are viewed in negative and prejudiced ways, whether or not the handicapped children and adolescents are in the same or separate classrooms (Goodman, Gottlieb, & Harrison, 1972; Gottlieb

& Budoff, 1973; Gottlieb & Davis, 1973; Jaffe, 1966; Johnson, 1950; Johnson & Kirk, 1950; Heber, 1956; Miller, 1956; Novak, 1975; Rucker, Howe, & Snider, 1969).

How are Impressions Formed?

The second step in making social judgments about handicapped peers begins with the formation of an initial impression when they enter the classroom. One's cognitive representations of what another person is like are greatly influenced by the first few minutes of proximity (Heider, 1958; Kelley, 1973). First impressions can be strong and resistant to change, even with the introduction of contradictory information (Watson & Johnson, 1972). The formation of an impression of another person occurs through perceiving initial actions and appearances and generalizing from these initial impressions to the person's total personality (Asch, 1952). Three important aspects of first impressions need to be taken into account: (a) the primary potency of being handicapped, (b) the number of characteristics included in the impression, and (c) the dynamism of the impression.

Some characteristics are more important than others in forming an initial impression. Asch (1952) designated some characteristics as central and others as peripheral; and Allport (1954) designated the characteristics that overshadow much observed behavior as of primary potency. It is important to note that even when nonhandicapped students have a great deal of information available about a handicapped peer, the characteristic "handicapped" may dominate initial impressions. And such characteristics as physical attractiveness (Berscheid & Walster, 1974) and perceived similarity to oneself (Taylor & Kowiumake, 1976) have been found to be of primary potency.

Impressions may be classified as either differentiated or monopolistic on the basis of the number of characteristics included in the impression and the way the impression is influenced by the requirements of a given situation. A differentiated impression includes many different characteristics which are weighted differently in different situations. When only a few characteristics are perceived and they are weighted the same in all situations, a monopolistic impression exists. According to Allport (1954), humans operate under the "principle of least effort," which means that monopolistic impressions are easier to form and maintain than differentiated impressions.

Finally, differentiated impressions, by their very nature, are in a dynamic state of change because of their tentativeness and the differential weighting of characteristics according to the current situation. Monopolistic impressions, by their very nature, are static due to their rigid weighting of a few characteristics of primary potency regardless of the demands of the current situation.

As one forms an impression of another person, one inevitably categorizes and then labels aspects of the other's appearance and actions. It is to the issues of categorization and labeling that we now turn.

How Does Categorization and Labeling Function?

When nonhandicapped students form an impression of mainstreamed handicapped peers, they categorize the handicapped students' characteristics, attach a label to each category, and form a conceptual structure that organizes the overall impression, as with all perception and learning. Categorizing and labeling are natural aspects of human learning, thought, and memory (Johnson, 1979), but the way in which nonhandicapped students categorize, label and organize their impressions of handicapped peers has important influences on mainstreaming. Categorization and labeling may lead to differentiated, dynamic, and realistic impressions, or it may lead to errors based on rigid stereotypes.

Labels are a way of consolidating information in one easily retrievable term. And labels inevitably carry evaluative connotations as well as denotative meanings. Although labeling is inevitable, labels applied to handicapped peers may have negative effects by emphasizing monopolistic categories of primary potency that carry stigmas, by encouraging treatment only in terms of handicaps, and by assigning handicapped students to a low-power position.

Combs and Harper (1967) have shown that certain groups, such as psychopathic, schizophrenic, and cerebral palsied children, were rated more negatively by teachers when labeled than when unlabeled. Teachers also held lower expectations for performance from students labeled "culturally deprived" or "juvenile delinquent" (Jones, 1972; Kelley, 1972). Labels, furthermore, often define power relationships between the labeler and the labeled, placing the labeled in a low-power position.

What Kinds of Interaction Between Nonhandicapped and Handicapped Students are Desirable?

When mainstreaming begins and handicapped students enter the regular classroom, in the initial interactions nonhandicapped students form an impression of their handicapped classmates, categorize the observable characteristics, and attach labels to the categories. The labels of "mentally retarded," "learning disabled," "emotionally disturbed," "hearing imparied," and so forth, have negative connotations that carry stigmas. From the beginning, therefore, handicapped students are perceived somewhat negatively, and this perception sets up the strong possibility of a process of rejection by nonhandicapped peers.

Physical proximity between handicapped and nonhandicapped students created by placing them in the same classroom is the beginning of an opportunity, but like all opportunities, it carries a risk of making things worse as well as the possibility of making things better. Physical proximity does not mean that stigmatization, stereotyping, and rejection of handicapped peers by nonhandicapped students will automatically result, or that handicapped students will automatically be included in the peer relationships with nonhandicapped classmates necessary for maximal achievement and healthy social development. Several studies indicate that placing handicapped and nonhandicapped students in close physical proximity (e.g., the same classroom) may increase nonhandicapped students' prejudice toward and stereotyping and rejection of their handicapped peers (Goodman, Gottlieb, & Harrison, 1972; Gottlieb & Budoff, 1973; Gottlieb, Cohen, & Goldstein, 1974; Iano, et al., 1974; Panda & Bartel, 1972). On the other hand, there is also evidence that placing handicapped and nonhandicapped students in the same classroom may result in more positive attitudes of nonhandicapped students toward their handicapped peers (Ballard, Corman, Gottlieb, & Kaufman, 1977; Higgs, 1975; Jaffe, 1966; Lapp, 1957; Sheare, 1974; Wechlser, Suarez, & McFadden, 1975). This contradictory evidence is consistent with previous research on ethnic integration, which indicates that while contact between stigmatized and nonstigmatized students may be a necessary condition for reducing prejudice and rejection, it is not a sufficient one (Gerard & Miller, 1975; Harding, et al., 1969; Shaw, 1973; Watson & Johnson, 1972; Wolf & Simon, 1975).

During the initial interaction between nonhandicapped and handicapped classmates, furthermore, the nonhandicapped students may feel discomfort and show "interaction strain." Siller and Chipman (1967), Whiteman and Lukoff (1967), and Jones (1970) found that physically nonhandicapped persons reported discomfort and uncertainty in interacting with physically handicapped peers. Kleck and his associates provide evidence indicating that nonhandicapped indidivuals interacting with a physically handicapped (as opposed to physically nonhandicapped) person exhibited greater motoric inhibition (Kleck, 1968); greater physiological arousal (Kleck, 1966); less variability in their behavior, terminated interaction sooner, expressed opinions that were not representative of their actual beliefs, and reported discomfort in the interaction (Kleck, Ono, & Hastorf, 1966); and in the case of a person said to have epilepsy, maintained greater physical distance (Kleck, et al., 1968). Jones (1970), furthermore, found that nonhandicapped college students who performed a learning task in the presence of a blind confederate (as opposed to a sighted confederate) reported stronger beliefs that they would have performed better on the task if the blind person had not been present, even when the actual performance data indicated that the presence of a blind or sighted person had no significant effects on the college students' achievement. The discomfort many nonhandicapped students seem to feel when initially interacting with a handicapped peer may add to the risk that a monopolistic, static, and overly simplified view of handicapped peers as being stigmatized may dominate relationships between the two groups of students when handicapped students are mainstreamed into the regular classroom.

Whether interaction between handicapped and nonhandicapped students results in a process of acceptance or rejection is determined by the type on interdependence among students' learning goals and rewards which is structured by the teacher. Within any learning situation, a teacher can structure positive goal interdependence (i.e., cooperation), negative goal interdependence (i.e., competition), or no goal interdependence (i.e., individualistic efforts) (Johnson & Johnson, 1975). In a cooperative learning situation, students' goal attainment is positively correlated and students coordinate their actions to achieve the goal. Students can achieve their learning goal if, and only if, the other students with whom they are cooperatively linked achieve their learning goal. In a competitive learning situation, students' goal attainment is negatively correlated and one student can obtain his/her goal only if the other students with whom he/she is competitively linked fail to obtain their learning goal. In an individualistic learning situation, the goal achievement of each student is unrelated to the goal attainment of others; there is no correlation among students' goal attainment. Students' success are contingent on their own performance irrespective of the quality of performance of others.

Student-Student Interaction

Each goal structure promotes a different pattern of interaction among students. Aspects of student-student interaction important for learning (Johnson & Johnson, 1975) are accurate communication and exchange of information, facilitation of each other's efforts to achieve, constructive conflict management, peer pressures toward achievement, decreased fear of failure, divergent thinking, acceptance and support by peers, use of other's resources, trust, and emotional involvement in and commitment to learning. A summary of the research findings on the relations between the three goal structures and these aspects of student-student interaction is presented in Table 1 (for specific references, see Johnson & Johnson, 1975, 1978). Cooperation provides opportunities for positive interaction among students, while competition promotes cautious and defensive student-student interaction (except under very limited conditions). When students are in an individualistic goal structure, they work by themselves to master the skill or knowledge assigned, without interacting with other students.

In the ideal classroom all three goal structures are used appropriately. All students learn how to work cooperatively with other students, compete for fun and enjoyment, and work autonomously. Most of the time, however, students work on instructional tasks within the goal structure that is most productive for the type of task and the cognitive and affective outcomes desired. The teacher decides which goal structure to implement within each instructional activity. The way in which teachers structure learning goals determines how students interact with each other and with the teacher. The interaction patterns, in turn, determine the cognitive and affective outcomes of instruction. When teachers wish to promote positive interaction among students, a cooperative goal structure is used, and competitive and individualistic goal structures are avoided. The obvious conclusion is that positive mainstreaming is facilitated by the cooperative interaction pattern and hindered by the competition of individualism. Let us look at the processes of acceptance and rejection for further clarification of this conclusion.

Table 1

Goal Structures and Interpersonal Processes Affecting Learning

Cooperation	Competition	Individualism
High interaction	Low interaction	No interaction
Effective communication	No, misleading, or threatening communication	No interaction
Facilitation of other's achievement: helpling, sharing tutoring	Obstruction of other's achievement	No interaction
Peer influence towards achievement	Peer influence against achievement	No interaction
Problem-solving conflict management	Win-lose conflict management	No interaction
High divergent and risk-taking thinking	Low divergent and risk-taking thinking	No interaction
High trust	Low trust	No interaction
High acceptance and support by peers	Low acceptance and support by peers	No interaction
High emotional involvement in and commitment to learning by almost all students	High emotional involvement in and commitment to learning by the few students who have a chance to win	No interaction
High utilization of resources of other students	No utilization of resources of other students	No interaction
Division of labor possible	Division of labor impossible	No interaction
Decreased fear of failure	Increased fear of failure	No interaction

Process of Acceptance

The process of acceptance (see Figure 1) begins with handicapped and nonhandicapped students being placed in small, heterogeneous learning groups and given the assignment of completing a lesson as a group, making sure that all members master the assigned work. In other words, a positive interdependence is structured among students' learning goals. There is a great deal of research comparing the effects of cooperative, competitive, and individualistic learning (Johnson & Johnson, 1975, 1978). Compared with competitive and individualistic learning situations, working cooperatively with peers

1. creates a pattern of promotive interaction, in which there is
    a. more direct face-to-face interaction among students;
    b. an expectation that one's peers will facilitate one's learning;
    c. more peer pressure toward achievement and appropriate classroom behavior;
    d. more reciprocal communication and fewer difficulties in communicating with each other;
    e. more actual helping, tutoring, assisting, and general facilitation of each other's learning;
    f. more open-mindedness to peers and willingness to be influenced by their ideas and information;
    g. more positive feedback to and reinforcement of each other;
    h. less hostility, both verbal and physical, expressed towards peers;

2. creates perceptions and feelings of
    a. higher trust in other students;
    b. more mutual concern and friendliness for other students, more attentiveness to peers, more feelings of obligation to and responsibility for classmates, and desire to win the respect of other students;
    c. stronger beliefs that one is liked, supported, and accepted by other students, and that other students care about how much one learns and want to help one learn;
    d. lower fear of failure and higher psychological safety;
    e. higher valuing of classmates; and
    f. greater feelings of success.

Positive goal interdependence creates the above patterns of promotive interaction and psychological states which, in turn, tend to create (a) differentiated, dynamic, and realistic impressions of handicapped classmates by nonhandicapped students and (b) a positive cathexis toward others and oneself.

Labeled handicaps lose their primary potency when a view of the handicapped peer as a person becomes highly differentiated, dynamic, and realistic. A differentiated, dynamic impression includes many different categories; each category is assigned a weight as to its importance according to the demands of any specific situation, and the weight or salience of each category changes as the requirements of a situation change. New information concerning the handicapped peers is admitted to one's impression as it becomes relevant. Thus, if a peer is visually impaired, this category may be noted when the group is trying to read what the teacher has written on the blackboard, but it will be forgotten when the group is discussing the materials under study. The conceptualization of the handicapped peer stays in a dynamic state of change, open to modification with new information, and takes into account situational factors.

As nonhandicapped students work closely with handicapped peers, the boundaries of the handicap become more and more clear. While handicapped students may be able to hide the extent of their disability when they are isolated, the intensive promotive interaction under positive goal interdependence promotes a realistic as well as differentiated view of the handicapped students and their disabilities. If a handicapped member of a learning group cannot read or speak clearly, the other members of the learning group become highly aware of that fact. With the realistic perception, however, there also comes a decrease in the primary potency of the handicap and a decrease in the stigmatization connected with the handicapped person.

A direct consequence of cooperative experiences is a positive cathexis in which (Deutsch, 1949, 1962; Johnson & Johnson, 1975, 1978)

1. the positive value attached to another person's efforts to help one achieve one's goals becomes generalized to the person, and
2. students positively cathect to their own actions aimed at achieving the joint goal and generalize that value to themselves as persons.

In other words, the acceptance of and liking for handicapped peers by nonhandicapped students increase when interaction occurs within a context of positive goal interdependence, and the self-attitudes of handicapped students become more positive.

Process of Rejection

The process of rejection is also described in Figure 1. When handicapped students are first placed in the classroom they carry a social stigma that dominates initial impressions and leads to the formation of monomoplistic stereotypes which are static and overshadow much observed behavior. This initial tendency toward the rejection of handicapped students by nonhandicapped peers is perpetuated by instructing students to work alone with the purpose of either outperforming their peers (competition) or meeting a set criterion (individualistic efforts).

When interaction between handicapped and nonhandicapped students takes place within a context of negative goal interdependence, compared with cooperative learning activities (Johnson, 1975, 1978)

1. there is a pattern of oppositional interaction in which students
    a. have little face-to-face interaction;
    b. expect peers to frustrate the achievement of their learning goals;
    c. face peer pressure against achievement and appropriate classroom behavior;
    d. communicate inaccurate information and frequently misunderstand each other;
    e. are closed-minded to and unwilling to be influenced by peers;
    f. give each other negative feedback; and
    g. express verbal and physical hostility toward peers;

2. there are perceptions and feelings of
    a. distrust for other students;
    b. higher fear of failure and more feelings of failure;
    c. less mutual concern and feelings of responsibility for peers;
    d. being rejected and disliked by classmates.

Negative goal interdependence creates the above patterns of oppositional interaction and psychological states which, in turn, create (a) monopolistic, static, and oversimplified impressions of handicapped classmates by nonhandicapped students, and (b) negative feelings toward others and oneself.

When interaction between handicapped and nonhandicapped students takes place within a context of no goal interdependence, students are instructed to work on their own, without interacting with other students, with their own materials, and on goals that are independent from the learning goals of other students. In such a situation, there is no interaction among students and no structured interconnection with peers. The independence of students during learning activities creates (a) monopolistic, static, and oversimplified impressions of handicapped classmates by nonhandicapped students, and (b) negative feelings toward others and oneself.

Both competitive and individualistic learning activities provide little or no information about handicapped peers, thus allowing initial stereotypes to continue. What little information is available is likely to confirm existing stereotypes that handicapped peers are "losers." The boundaries of the handicap are not clarified.

A direct consequence of competitive experiences is negative attitudes in which (Deutsch, 1949, 1962; Johnson & Johnson, 1975, 1978)

1. the negative value attached to a classmate's efforts to achieve becomes generalized to them as people (because if they "win," you "lose"), and
2. students feel negative about their own actions when they lose and they generalize the negative evaluation to themselves as persons (in the usual classroom, achievement hierarchies are relatively stable, leaving the majority of students continually to experience failure).

Generally, the research indicates that in comparison with cooperative situations, classmates in competitive sitatutions are disliked and self-esteem is lower for all students but the few "winners." Both self-esteem and liking for classmates are lower in individualistic than cooperative learning situations (Johnson & Johnson, 1975, 1978); the theoretical rationale for these findings is somewhat unclear, however.

Self-Attitudes of Handicapped Students

The processes of acceptance and rejection create expectations for future interactions between handicapped and nonhandicapped students. The process of acceptance leads to expectations of rewarding and enjoyable experiences while the process of rejection leads to expectations of negative experiences. These expectations, as well as the labels and categories used in nonhandicapped students' conceptions of handicapped peers, affect the self-attitudes of handicapped students.

The behavior of a stigmatized individual is considered deviant when it departs from social norms. For example, when a child labeled retarded performs poorly on a simple intellectual task, he is behaving correctly; but if the child successfully completes the task, he is behaving inappropriately. The social response to this behavior may be, "What's wrong? You're not supposed to be able to do that!" and may lead to the extinguishing of achievement behavior. Labels are stabilized when the handicapped student accepts the label and behaves in accordance with it. The process of becoming handicapped, therefore, consists of three steps: the actions of the child, the labeling of the actions as a handicap, and a self-concept change leading the child to consider himself handicapped.

The impact of peer expectations and labels may be especially powerful for handicapped students. Turnure and Zigler (1958) demonstrated that retarded children and children who have a history of failure are more outer-directed than are nonhandicapped children and children who have a history of success. This outer-directedness was demonstrated to increase the influence of models on the children's behavior. It also may increase the impact of peers' expectations and labels on self-attitudes.

When handicapped students are viewed negatively, stereotyped and disliked, and when nonhandicapped students expect future interaction with them to be distasteful and unpleasant, the self-attitudes of the handicapped students may become negative. When handicapped students are viewed by nonhandicapped peers in differentiated, dynamic, and realistic ways and the expectations are that future interactions will be rewarding, the self-attitudes of the handicapped students may become positive.

There is correlational evidence that cooperativeness is positively related to self-esteem in students throughout elementary, junior, and senior high school in rural, urban, and suburban settings; competitiveness is generally unrelated to self-esteem; and individualistic attitudes tend to be related to feelings of worthlessness and self-rejection (Gunderson & Johnson, 1978; Johnson & Ahlgren, 1976; Johnson, Johnson, & Anderson, 1978; Johnson & Norem-Hebeisen, 1977; Norem-Hebeisen & Johnson, 1978). There is experimental evidence indicating that cooperative learning experiences, compared with individualistic ones, result in higher self-esteem (Johnson, Johnson, & Scott, 1978), that cooperative learning experiences promote higher self-esteem than does learning in a traditional classroom (Blaney, et al., 1977; Geffner, 1978), and that failure in competitive situations promotes increased self-derogation (Ames, Ames, & Felker, 1977).

In a series of studies with suburban junior and senior high school students Norem-Hebeisen and Johnson (1978) examined the relationship between cooperative, competitive, and individualistic attitudes and ways of conceptualizing one's worth from the information that is available about oneself. Four primary ways of deriving self-esteem are: basic self-acceptance (a belief in the intrinsic acceptability of oneself), conditional self-acceptance (acceptance contingent on meeting external standards and expectations), self-evaluation (one's estimate of how one compares with one's peers), and real-ideal congruence (correspondence between what one thinks one is and what one thinks one should be). Attitudes toward cooperation were found to be related to basic self-acceptance and positive self-evaluation compared to peers, attitudes toward competition were found to be related to conditional self-acceptance, and individualistic attitudes were found to be related to basic self-rejection.

Cooperative Interaction and Mainstreaming

It should be noted that at anytime in the classroom the process of rejection can be replaced by the process of acceptance by structuring cooperative interaction between handicapped and nonhandicapped students. There is evidence that cooperative interaction between nonhandicapped and handicapped students promotes acceptance and positive attitudes toward each other as well as positive self-attitudes.

Interpersonal Attraction

Considerable evidence has accumulated that cooperative interaction, compared with competitive interaction and individualistic efforts, promotes a great deal of interpersonal attraction among students (Johnson & Johnson, 1975, 1978). When students expect to cooperate with each other and when they actually do cooperate, peers who are perceived to be markedly different from oneself are liked, even if they lower the overall achievement of the group (D. Johnson & Johnson, 1972; S. Johnson & Johnson, 1972). Johnson, Johnson, and Scott (1978) found that cooperative learning experiences, compared to individualistic ones, lead to a greater valuing of heterogeneity among peers and to the choosing of peers one has cooperated with in the past for future learning groups, even when these peers are less able than other classmates.

The results of two large-scale surveys indicate that the more favorable students' attitudes toward cooperation, the more positive they feel toward peers who are less bright and also those who are smarter than oneself

(Johnson & Ahlgren, 1976;Johnson, Johnson, & Anderson, 1978). Attitudes toward competition and individualism are not related to liking for either set of peers. From the second through the twelfth grades, in rural, suburban, and urban schools, cooperativeness is related to valuing other students, no matter what their achievement levels or intellectual potentials seem to be. Cooperativeness, furthermore, was found to be consistently related to positive attitudes toward listening to and liking other students, and believing that one is liked by other students, while students competitiveness and individualism are not related to these attitudes.

Five studies have directly compared cooperatively structured learning with competitive and individualistic instruction when handicapped students were mainstreamed into the regular classroom. In the first, Armstrong, Balow, and Johnson (1979) compared cooperative with individualistic instruction in langauge arts for 40 fifth and sixth grade students for 90 minutes a day for a four-week period. Twenty-five percent (10) of the sample were males with learning disabilities. Armstrong and her colleagues found that the regular classroom students in the cooperative learning groups evaluated their learning-disabled peers as more valuable and smarter than did the regular classroom students in the individualistic condition. Regular classroom students in the cooperative condition also believed they knew their learning-disabled peers better, chose them for friends more often, felt that they had been more frequently helped by their learning-disabled peers, and wished for them to be removed from the classroom less frequently. The learning-disabled students were far less isolated in the cooperative than in the individualistic condition.

In the second study, twelve second and third grade boys enrolled in a summer swimming program were either taught in cooperative pairs or individualistically (Martino & Johnson, 1979). Three normal-progress and three learning-disabled boys were randomly assigned to each condition. In the cooperative condition a normal-progress and a learning-disabled boy were randomly assigned to each pair. Observers recorded the number of times the normal-progress boys interacted with the learning-disabled students during a fifteen minute free swim period at the end of each one-hour class. Over the nine days of instruction, in the individualistic condition there was only one instance of a friendly interaction between a normal-progress and a learning-disabled student. In the cooperative condition there were up to 20 daily instances of friendly interaction during the free time between normal-progress and learning-disabled students, with an average of 10 friendly interactions per day. There was an average of 3 hostile interactions between normal-progress and learning-disabled boys each day in the individualistic condition while there was an average of one hostile interaction per day between the two types of students in the cooperative condition.

In a study of seventh-graders, Cooper, Johnson, Johnson, and Wilderson (1979) studied the relationships between regular classroom students and learning-disabled and emotionally-disturbed students in cooperative, competitive, and individualistic science, English, and geography classes. Each class period lasted sixty minutes and the study lasted for fifteen instructional days; students, therefore, received 45 hours of instruction in each condition. The researchers found that far more students reported helping and receiving help from their handicapped peers in the cooperative than in the other two conditions. Regular classroom students in the cooperative and competitive conditions chose handicapped peers for friends more frequently than did the nonhandicapped students in the individualistic condition.

In a fourth field experiment the effects of cooperative, individualistic, and laissez-faire goal structures were compared on interpersonal attraction between nonhandicapped junior high school students and severely retarded peers (Johnson, Rynders, Johnson, Schmidt, & Haider, in press). Students were from a public junior high school, a Catholic junior high school, and a special station school. The retarded students were functioning at a high trainable level. Students participated in a bowling class that met for one hour per week for six weeks. The results indicate that considerably more positive, supportive, and friendly interaction took place between the nonhandicapped and the retarded students in the cooperative than in the other two conditions.

In the fifth field experience interpersonal attraction between nonhandicapped junior high school students and Down-syndrome students from a special station school was studied under cooperative, competitive, and individualistic conditions (Rynders, Johnson, Johnson, & Schmidt, 1979). Procedures were identical with those used in the previous bowling study. Considerably more positive, supportive, and friendly interaction took place between the two groups of students in the cooperative than in the other two conditions.

Now that the process of social judgment has been explained and the importance of heterogeneous, cooperative grouping has been emphasized, the question is, "How does one set up heterogeneous, cooperative groups in a classroom?" For a brief summary of the specific strategies designed to assist the teacher, let us return to the story of Carl which began this chapter. (The teacher's role in setting up cooperative groups is described in more depth in Learning Together and Alone, Johnson & Johnson, 1975.)

Structuring Learning to Insure Integration

> Carl glanced shyly around the classroom to see if anyone was watching him. No one was. He began to relax a bit. Carl was able to smile back as the special education teacher gave him an encouraging nod and left the room.

How can the regular classroom teacher structure the interactions Carl will have with the other students in the regular classroom? The teacher has three alternatives:

1. The teacher can place Carl in competition with the other students to see who is best. Competition is based on students' success being dependent on doing better than their classmates. If one student wins, the other students lose. Competition among students is, of course, out of the question in mainstreaming as it promotes the rejection of low-ability students as "losers."
2. The teacher can have Carl and the other students work alone, independent of each other. Carl can then work on material specifically suited to his ability level. What Carl does will not affect the achievement of other students and what other students do will have

no effect on Carl's achievement one way or the other. Yet such a practice isolates Carl from his normal-progress peers and creates a situation in which he will be ignored or disliked for being "different."

3. The teacher can place Carl in a cooperative learning group with several normal-progress peers with the assignment of completing the lesson as a group, making sure that everyone in the group understands the material. In cooperation, students have a vested interest in insuring that other group members learn, as the group's success depends on the achievement of all members. Helping, sharing, peer tutoring, and peer encouragement and support for learning, as well as peer acceptance and liking, are all hallmarks of cooperative learning experiences.

Cooperation is the only learning structure that is consistent with the purpose of mainstreaming. In addition, it benefits average and gifted as well as handicapped students.

Structuring Learning Cooperatively

> Carl shyly sank down into his seat, hoping the other students would not notice him. The regular classroom teacher announced that all students would be assigned to math groups where they would work together to solve 12 story problems. Carl was startled to hear his name called as he was assigned to a learning group. Joining his group he studied the faces of Susan, Sam, and Sally as they jovially assembled.

What do teachers do to set up heterogeneous cooperative learning groups and to insure that they operate effectively? Although there is no formula for using cooperative groups in instruction, there is a model that outlines the role of the teacher. The following framework has been helpful to many teachers in initiating cooperation during instruction. Each teacher should feel free to modify the plan for his/her classroom setting and students. The model is presented for Carl's math lesson, but it works just as well in other subject areas.

1. As far as possible, specify the instructional objectives. In the case of this math lesson, the objectives are to have every student master the basic math skills needed to work the assigned problems.

2. Select the group size most appropriate for the lesson. With young or unskilled students, the size of the group may best be two or three members. With older or more skilled students, larger groups are possible. In Carl's classroom, the teacher selected a group size of four students.

3. Assign students to groups. Usually, teachers wish to maximize the heterogeneity in the groups, although, at times, homogeneous groups are useful. A common procedure is to give the class a pretest and then assign one high student, two average students, and one low student to each cooperative group. This is what Carl's teacher did.

4. Arrange the classroom so that group members are close together and the groups are as far apart as possible.

5. Provide the appropriate materials. In the math lesson in Carl's class, each group is given 12 story problems, one answer sheet, and a checklist for each member entitled, "How well did I work in the group today?"

6. Explain the task and the cooperative goal structure. For Carl's math group the task is to solve the story problems and to insure that all group members understand how to solve each one. Members indicate their understanding by signing the group's answer sheet. (An alternative to the single answer sheet is to give each student an individual test on the material and average the members' scores for the group's score.) The cooperative structure involves a group goal (complete the assignment), criteria for success (perfect score is excellent, 80 percent correct is good, 60 percent correct is poor), an awareness that all group members receive the same reward, and an understanding of cooperative actions to engage in while they are working together (listening carefully to each other, praising each other, checking to make sure everyone understands the material).

> As Sally began to read the first story problem they were to solve Carl began to move his chair away from the group. He felt panic. When Susan, Sam, and Sally turned to him for agreement with their answer he backed his chair further away until it hit a nearby wall. He looked away from their expectant faces as his tears began to overflow despite his best efforts to hold them in.
>
> The teacher quietly appeared at Carl's side and asked what was wrong. "I don't want to work with anybody," he gasped, "I want to go back to my special classroom, to the students I know!"
>
> Observing Carl's fright, the teacher suggested, "The group needs someone to record its answers. Why don't you

> be the recorder for the group? Susan, Sam, and Sally will appreciate the help."
>
> After Carl was arranged in the center of the group with answer sheet and pencil, the teacher moved to where she could watch the group work. Carl clearly was taking his responsibility as recorder seriously, listening carefully to the answers given by the other group members and writing them down as neatly as he could. Sally especially seemed skilled in explaining how to work the problems to Carl.
>
> The next day, observing Carl working in the group, the teacher stopped nearby. Carl smiled at the teacher and left his group temporarily. "This is the most fun I've ever had in school!" he told her.

The story of Carl is true. It actually happened in a school where the authors were consulting. And it illustrates several important aspects of using heterogeneous cooperative groups for instructional purposes. They are summarized in the final three aspects of the teacher's role:

7. Observe the student-student interaction. Just because teachers ask students to cooperate with each other does not mean they will always do so. Through observation, teachers can spot the problems which students have in working together cooperatively.

8. Intervene as a consultant to help the group (a) solve its problems in working together effectively, (b) learn the interpersonal and group skills necessary for cooperating, and (c) check that all its members are

learning the material. Carl's teacher helped to reduce Carl's fear of working with normal-progress peers by giving him a structured role to fulfill in the group. The next step is to teach the normal-progress students helping skills so that they can explain material successfully to Carl. Carl, furthermore, can be trained in various cooperative skills that help the group work, even if he cannot do the academic work as quickly as his peers.

9. Evaluate the group products, using a criterion-referenced evaluation system. If a mainstreamed student such as Carl is completely unable to do the work assigned, the teacher may wish to use different criteria in evaluating his work, to assign less material for him to learn, to give him different material to learn, or to use improvement scores for him. At the end of each lesson, teachers can have students complete a checklist on how well they worked in their group.

Cooperation between Classrooms and Special Education Teachers

Successfully mainstreaming requires the help and attention of both the special education and classroom teachers. There is a specific role for each which requires cooperation to form a team in which they coordinate efforts to educate and socialize the students. The role of the classroom teacher is as follows:

A. Primarily to structure learning experiences cooperatively and to ensure that the small groups are heterogeneous, with handicapped and nonhandicapped students in the same group. It is the cooperative goal structure that promotes positive interaction among students, no matter how they differ from each other, and provides a supportive context within which integration of handicapped students can take place.

B. To specify a structured role within the cooperative groups for the handicapped students. Many students being mainstreamed will be fearful and anxious about interacting with nonhandicapped peers. Clear and structured responsibilities within the small groups will alleviate such feelings.

C. To train nonhandicapped (as well as handicapped) students in helping, tutoring, teaching, and sharing skills. To work effectively within a cooperative learning group, students must be able to help and teach each other, especially when students are heterogeneous in ability. Many teaching skills, such as the use of praise and prompting, are easily taught to students.

D. To make the requirements for the handicapped students reasonable. Some mainstreamed students are not doing grade-level work academically in certain ways. This does not mean that they cannot be part of a cooperative learning group. There are several ways to adapt lessons so that students at markedly different achievement levels can participate in the same cooperative group, such as,

1. use different criteria for success for each group member;
2. vary the amount each group member is expected to master;

3. give group members different lists, words, problems, and then use the average percentage worked correctly as the group's score; and
4. use improvement scores for the handicapped students rather than actual performance.

Undoubtedly, handicapped students can be evaluated in other ways that do not prevent their working with nonhandicapped peers.

E. To support the positive relationships among peers and the feelings of success experienced by all students which result from participating in cooperative learning experiences.

F. Besides structuring heterogeneous, cooperative learning groups, the regular classroom teacher will want to establish a collaborative working relationship with the special education teachers who also work with the mainstreamed students. The special education teachers are important resources for encouraging appropriate academic and interpersonal behaviors by the mainstreamed students in the regular classroom and, therefore, regular classroom teachers should use them.

The role of the special education resource teacher on such a team is as follows:

A. To consult with the classroom teacher on setting up heterogeneous cooperative learning groups. Facilitate the use of cooperative activities in which handicapped and nonhandicapped students are in the same group by providing the regular classroom teacher with any help that might be needed to do so. Observe the groups systematically, keeping records of how the handicapped and nonhandicapped students interact with each other.

B. To teach the handicapped students structured roles to enact in the small groups. Even if a student cannot read, he can listen carefully and summarize what everyone in the group is saying, provide leadership, help to keep the group's work organized, and so on. There is always some way to facilitate a group's work, no matter what handicap a student may have.

C. To teach the nonhandicapped students how to assist and help the handicapped students. Some simple skills, such as the use of praise, can be mastered by nonhandicapped students to improve their ability to work in a heterogeneous cooperative group. And there may be specific aspects of a handicap that the nonhandicapped students need to understand in order to adapt their interactions to include the mainstreamed students.

D. To consult with the classroom teacher on making the requirements for the handicapped students reasonable. The regular classroom teacher may need some help in setting up appropriate criteria and assigning appropriate work.

E. To support the positive relationships between handicapped and nonhandicapped students and the feelings of success experienced by all students which result from participating in cooperative learning activities. Low-ability students will especially experience a great deal more success in cooperative activities than in competitive or individualistic ones.

Although many good teachers have moved away from the predominantly competitive mode of present classrooms to the use of cooperative groups, for many other teachers the use of cooperative groups, as described in this chapter, seems to be a departure from present practice. Therefore a brief, "back to basics" statement seems advisable. The use of heterogeneous cooperative learning groups benefits not only the handicapped students being mainstreamed but, also, the average and gifted students in the regular classroom (Johnson & Johnson, 1975). The teaching procedures are straightforward enough so that any teacher can learn them. Yet the importance of cooperative learning experiences goes beyond the integration of handicapped students into the regular classroom and the resulting increases in friendships, social skills, self-esteem, and achievement. Cooperation is as basic to humans as the air we breathe. The ability of all students to work cooperatively with other people is the keystone to building and maintaining stable families, careers, and friendships. Being able to perform technical skills such as reading and math are of little use if the person cannot apply them in cooperative interaction with other people in career, family, and community settings. The most logical way to emphasize the use of students' knowledge and skills within a cooperative framework, such as they will meet as members of society, is to use cooperative learning groups in the classroom. A very good case can be made to support the contention that nothing is more basic in education than learning to work cooperatively with other people.

Summary

The central question in mainstreaming for the classroom teacher is, "How will handicapped and nonhandicapped students interact with each other?" Placing handicapped students in the regular classroom is the beginning of an opportunity but, like all opportunities, it carries a risk of making things worse as well as the possibility of making things better. Physical proximity of handicapped and nonhandicapped students does not guarantee positive attitudes and increased acceptance; increased prejudice and rejection may be the result. The crucial factor in whether a process of acceptance or a process of rejection occurs in the classroom is the kind of student-student interaction fostered by the teacher. Although competition and individualism tend to support rejection, cooperative interactions between handicapped and nonhandicapped students encourage the positive social interactions that bring handicapped students into the mainstream of classroom society. It is crucial to note that structuring learning cooperatively is not something done for the handicapped students, it is beneficial to all students. The research indicates that it encourages higher achievement and more appropriate self-esteem for all students and more positive social interactions throughout the classroom.

Cooperative instruction is based on a set of practical strategies which any teacher can master. It does not require the classroom teacher to become an "expert" in special education. The model described in this chapter provides a natural way for regular and special education teachers to work together as a team.

References

Abelson, A. Measuring preschool's readiness to mainstream handicapped children. Child Welfare, 1976, 55, 216-220.

Alexander, K., & McDill, E. Selection and allocation within schools: some causes and consequences of curriculum placement. American Sociological Review, 1976, 41, 963-980.

Allport, G. The nature of prejudice. Cambridge, Mass.: Addison-Wesley, 1954.

Ames, C., Ames, R., & Felker, D. Informational and dispositional determinants of children's achievement attributions. Journal of Educational Psychology, 1976, 68, 63-69.

Armstrong, B., Balow, B., & Johnson, D. W. Cooperative goal structure as a means of integrating learning-disabled with normal-progress elementary pupils. Mimeographed report, University of Minnesota, submitted for publication, 1978.

Asch, S. Social psychology. Englewood Cliffs, N.J.: Prentice-Hall, 1952.

Ballard, M., Corman, L., Gottlieb, J., & Kaufman, M. Improving the social status of mainstreamed retarded children. Journal of Educational Psychology, 1977, 69, 605-611.

Berscheid, E., & Walster, E. Physical attractiveness. In L. Berkowitz (Ed.), Advances in experimental social psychology, Vol. 7. New York: Academic Press, 1974, 158-216.

Blaney, N., Stephan, C., Rosenfield, D., Arsonson, E., & Sikes, J. Interdependence in the classroom: a field study. Journal of Educational Psychology, 1977, 69, 139-146.

Christopolos, F., & Renz, P. A critical examination of special education programs. Journal of Special Education, 1969, 3, 371-380.

Cooper, L., Johnson, D. W., Johnson, R., & Wilderson, F. Effects of cooperative, competitive, and individualistic experiences on interpersonal attraction among heterogeneous peers. Journal of Social Psychology, in press.

Deutsch, M. A theory of cooperation and competition. Human Relations, 1949, 2, 129-152.

Deutsch, M. Cooperation and trust: some theoretical notes. In M. Jones (Ed.), Nebraska symposium on motivation. Lincoln, Neb.: University of Nebraska Press, 1962, 275-320.

Dunn, L. Special education for the mildly retarded--is much of it justifiable? Exceptional Children, 1968, 35, 5-22.

Fishcher, C., & Rizzo, A. A paradigm for humanizing special education. Journal of Special Education, 1974, 8, 321-329.

Flynn, T. Regular-class adjustment of EMR students attending a part-time special education program. Journal of Special Education, 1974, 8, 167-173.

Geffner, R. The effects of interdependent learning on self-esteem, interethnic relations, and intra-ethnic attitudes of elementary school children: a field experiment. Unpublished doctoral dissertation, University of California at Santa Cruz, 1978.

Gerard, H., & Miller, N. School Desegregation. New York: Plenum, 1975.

Goffman, E. Stigma. Englewood Cliffs, N.J.: Prentice-Hall, 1963.

Goodman, H., Gottlieb, J., & Harrison, R. Social acceptance of EMR's integrated into a nongraded elementary school. American Journal of Mental Deficiency, 1972, 76, 412-417.

Gordon, S. Psychological problems of adolescents with minimal brain dysfunction. In D. Kronick (Ed.), Learning disabilities: its implications to a responsible society. Chicago: Developmental Learning Materials, 1969.

Gottlieb, J., & Budoff, A. Social acceptability of retarded children in nongraded schools differing in architecture. American Journal of Mental Deficiency, 1973, 78, 15-19.

Gottlieb, J., Cohen, L., & Goldstein, L. Social contact and personal adjustment as variables relating to attitudes toward educable mentally retarded children. Training School Bulletin, 1974, 71, 9-16.

Gottlieb, J., & Davis, J. Social acceptance of EMR children during overt behavioral interactions. American Journal of Mental Deficiency, 1973, 78, 141-143.

Gunderson, B., & Johnson, D. W. Promoting positive attitudes toward learning a foreign language by using cooperative learning groups. Mimeographed report, University of Minnesota, 1978.

Harding, J., Proshansky, H., Kutner, B., & Chein, I. Prejudice and ethnic relations. In G. Lindzey & E. Aronson (Eds.), The handbook of social psychology, Vol. 5. Reading, Mass.: Addison-Wesley, 1969, 1-77.

Heider, F. The psychology of interpersonal relations. New York: Wiley, 1958.

Higgs, R. Attitude formation--contact or information? Exceptional Children, 1975, 41, 496-497.

Iano, R., Ayers, D., Heller, H., McGettigan, J., & Walker, V. Sociometric status of retarded children in an integrated program. Exceptional Children, 1974, 40, 267-271.

Jaffe, J. Attitudes of adolescents toward mentally retarded. American Journal of Mental Deficiency, 1966, 70, 907-912.

Johnson, D. W. Educational psychology. Englewood Cliffs, N.J.: Prentice-Hall, 1979.

Johnson, D. W., & Ahlgren, A. Relationship between student attitudes about cooperation and competition and attitudes toward schooling. Journal of Educational Psychology, 1976, 68, 92-102.

Johnson, D. W., & Johnson, R. Learning together and alone: cooperation, competition, and individualization. Englewood Cliffs, N.J.: Prentice-Hall, 1975.

Johnson, D. W., & Johnson, R. Mainstreaming: development of positive interdependence between handicapped and nonhandicapped students. University of Minnesota, College of Education, 1978.

Johnson, D. W., & Johnson, R. (Eds.), Social interdependence in the classroom. Journal of Research and Development in Education, Special Issue, 1978, 12, Fall (No. 1).

Johnson, D. W., Johnson, R., & Anderson, D. Relationship between student cooperative, competitive, and individualistic attitudes and attitudes toward schooling. Journal of Psychology, 1978, 100, 183-199.

Johnson, D. W., Johnson, R., & Scott, L. The effects of cooperative and individualized instruction on student attitudes and achievement. *Journal of Social Psychology*, 1978, *104*, 207-216.

Johnson, D. W., & Norem-Hebeisen, A. Attitudes toward interdependence among persons and psychological health. *Psychological Reports*, 1977, *40*, 843-850.

Johnson, D. W., & Johnson, S. The effects of attitude similarity, expectation of goal facilitation, and actual goal facilitation on interpersonal attraction. *Journal of Experimental Social Psychology*, 1972, *8*, 197-206.

Johnson, G. A study of the social position of mentally handicapped children in the regular grades. *American Journal of Mental Deficiency*, 1950, *55*, 60-89.

Johnson, G., & Kirk, S. Are mentally handicapped children segregated in the regular grades? *Exceptional Children*, 1950, *55*, 60-89.

Johnson, R., Rynders, J., Johnson, D. W., Schmidt, B., & Haider, S. Producing positive interaction between handicapped and nonhandicapped teenagers through cooperative goal structuring: implications for mainstreaming. *American Educational Research Journal*, 1979,

Johnson, S., & Johnson, D. W. The effects of other's actions, attitude similarity, and race on attraction towards the other. *Human Relations*, 1972, *25*, 121-130.

Jones, R. Learning and association in the presence of the blind. *The New Outlook*, 1970 (December), 317-329.

Jones, R. Labels and stigma in special education. *Exceptional Children*, 1972, *38*, 553-564.

Karwait, N. School influences on student interaction patters. Baltimore: Center for Social Organization of Schools. Report No. 220, Johns Hopkins University, 1976.

Kelley, H. The processes of causal attribution. American Psychologist, 1973, 28, 107-128

Kleck, R. Emotional arousal in interaction with stigmatized persons. Psychological Reports, 1966, 19, 1226.

Kleck, R. Physical stigma and nonverbal cues emitted in face-to-face interaction. Human Relations, 1968, 21, 19-28.

Kleck, R., Buck, P., Goller, W., London, R. Pfeiffer, J., & Vukcevic, D. Effect of stigmatizing conditions on the use of personal space. Psychological Reports, 1968, 23, 111-118.

Kleck, R., Ono, H., & Hastorf, A. The effects of physical deviance upon face-to-face interaction. Human Relations, 1966, 19, 425-436.

Lapp, E. A study of the social adjustment of slow learning children who were assigned parttime to regular classes. American Journal of Mental Deficiency, 1957, 62, 254-262.

Martino, L., & Johnson, D. W. The effects of cooperative versus individualistic instruction on interaction between normal-progress and learning-disabled students. Journal of Social Psychology, 1979.

Mead, G. Mind, self, and society. Chicago: University of Chicago Press, 1934.

Miller, G. The magical number seven, plus or minus two: some limits on our capacity for processing information. Psychological Review, 1956, 63, 81-97.

Norem-Hebeisen, A., & Johnson, D. W. The relationship between cooperative, competitive, and individualistic attitudes and differentiated aspects of self-esteem. University of Minnesota, mimeographed report, submitted for publication, 1978.

Novak, D. Children's responses to imaginary peers labeled as emotionally disturbed. Psychology in the Schools, 1975, 12, 103-106.

Panda, K., & Bartel, N. Teacher perception of exceptional children. Journal of Special Education, 1972, 6, 261-266.

Rucker, C., Howe, C., & Snider, B. The acceptance of retarded children in junior high academic and non-academic regular classes. Exceptional Children, 1969, 35, 617-623.

Rynders, J., Johnson, R., Johnson, D., & Schmidt, B. Effects of cooperative, competitive, and individualistic goal structures on interaction between handicapped and nonhandicapped adolescents. Mimeographed report, University of Minnesota, submitted for publication, 1979.

Shaw, M. Changes in sociometric choices following forced integration of an elementary school. Journal of Social Issues, 1973, 29, 143-157.

Sheare, J. The relationship between peer acceptance and self-concept of children in grades 3 through 6. Doctoral dissertation, Penn State University, University Microfilms, No. 76-10, 783, 1975.

Siller, J., & Chipman, A. Attitudes of the Nondisabled Toward the Physically Disabled. New York: New York University, 1967.

Siegel, E. Special education in the classroom. New York: John Day, 1969.

Taylor, S., & Kowiumake, J. The perception of self and others: acquaintanceship, affect, and actor-observer differences. Journal of Personality and Social Psychology, 1976, 33, 403-408.

Telford, C., & Sawrey, J. The exceptional individual. Englewood Cliffs, N.J.: Prentice-Hall, 1977.

Turnure, J., & Zigler, E. Outer-directedness in the problem solving of normal and retarded students. Journal of Abnormal and Social Psycholgy, 1958, 57, 379-388.

Watson, G., & Johnson, D. W. Social psychology: issues and insights. Philadelphia: Lippincott, 1972.

Wechsler, H., Suarez, A., & McFadden, M. Teachers' attitudes toward the education of physically handicapped children: implications for implementation of Massachusetts Chapter 766. Journal of Education, 1975, 157, 17-24.

Whiteman, M., & Lukoff, I. A factorial study of sighted people's attitudes toward blindness. Journal of Social Psychology, 1964, 64, 339-353.

Wolf, R., & Simon, R. Does busing improve the racial interactions of children? Educational Researcher, 1975, 4, 5-10.

APPENDIX C

COOPERATIVE INSTRUCTIONAL GAMES: ALTERNATIVES TO THE SPELLING BEE

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Cooperative Instructional Games: Alternatives to the Spelling Bee

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Mainstreaming in this country has increased the number of exceptional children in regular classrooms. Teachers have always had to deal with groups of children who had a broad range of skills, abilities, and interests; but mainstreaming has resulted in even greater range. Such diversity has forced teachers to examine, abandon, or modify many of their standard teaching techniques and to seek better ways of meeting the needs of all children.

Competitive games and activities have long been criticized. Their use in teaching and in motivating children is even more questionable now that classes are deliberately and acknowledgeably heterogeneous on many levels. Faced with a wide span of needs, some teachers have turned almost exclusively to individualization—an individual program for each child. Individualization is appropriate for some aspects of the instructional day, but individualizing every aspect of a child's program is not easy and probably not desirable. Children need to acquire social skills and need to work with others whose interests and abilities are different from their own. Cooperation, not individualization, is the alternative to competition.

Cooperation can be defined as acting or working with others for mutual benefit. As a concept, cooperation is certainly not new to schools. Teachers have often tried to structure classroom situations that enhance cooperation and have long fostered cooperation through such activities as group projects and class plays. What is worth noting is the absence of cooperation from many games that teachers have their

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classes play for instructional purposes. Consider the following scenario:

Mr. Thompson's fifth grade is playing Spelling Baseball. The class has been divided into two teams, which are seated on opposite sides of the room. Mr. Thompson tries to divide the teams evenly, but he soon realizes that the two groups are not evenly matched. Albert comes "up to bat" for Team B. Mr. Thompson gives Albert the work "tongue" to spell. Albert spells it correctly and gets a "base hit" for his team. His teammates cheer. Now it's Brenda's turn. Her word is "heaven." Brenda begins to spell, then hesitates. Mr. Thompson knows that spelling is not Brenda's strongest subject and starts to help her. A roar comes from Team B: "That's not fair! You didn't help our team!" Mr. Thompson becomes silent and allows Brenda to finish. And finish she does: "h-e-a-v-i-n-." A groan comes from Team A. One student murmurs, "Great. We had to get Brenda again. Everybody knows she can't spell." Team B, which has also been intent on Brenda's performance, lets out a yell, "Yay!" A student says, "I knew she couldn't do it!" Mr. Thompson is distressed by the unsportsmanlike behavior and resolves to have a talk with the class on proper winning and losing behavior and the feelings of others.

Let us examine the scenario in a different way. Exactly what did the game accomplish? Mr. Thompson, being a diligent and responsible teacher, knew before the game who the good spellers were and who the poor spellers were. The game taught him nothing at all about the children's spelling prowess. Many of the children also well knew their proficiency in spelling—and their classmates'. The children might have welcomed a chance to help one another, to come to Brenda's assistance, but the rules of the game prohibit helping, labeling it "cheating." Did the game teach spelling? It is hard to say, but for many children the game simply confirmed for them the fact that they either could or could not spell well. Did the game develop positive social interactions? Probably not. Brenda left the game in tears, and after the game some members of the winning team were gloating. Mr. Thompson views the failure of the game as a failing of his pupils. They took it too seriously. They weren't gracious about winning. They made it a personal issue. Yet, many of the behaviors he observed during the game were predictable under the setup and the rules of the game. At other points in the day Mr. Thompson is concerned with structuring positive social interactions, but he has not yet come up with games that the children can play for fun, games that are not competitive.

What would make a game cooperative? How could such a game be designed? In a cooperative game the obstacle that must be overcome is not another person or another group, but rather an external obstacle. Two examples of external obstacles are time and the inherent difficulty of a task. The question is not, "Can we do this better or faster than they can?" but, "Can we, working as a group, accomplish a task of a certain level of difficulty within a limited time period?"

Competition and cooperation require different skills. A situation requiring competition is likely to call for only one skill, which members of the group may have in different degrees. A situation requiring cooperation is likely to call for a wide range of skills, including coordinating efforts, synchronizing behavior, and solving problems, and the group must find a way to help members who are weak in some of the skills. A cooperative spelling activity, for example, would call for good spellers, good scorekeepers, and children with good handwriting and would also require children who are good at coordinating and synchronizing these various efforts.

If games can help children develop skills needed in cooperation, the questions still remain: Why bother? Why teach cooperative skills?

Competitive structures seem to dominate schools and tend to be accepted as the only kind of structure possible. In an analysis of goal structures in the classroom Johnson and Johnson state:

> Although there has been a great deal of debate concerning various aspects of the instructional situation, most educators seem to assume that there are no operational alternatives to the competitive goal structure in which students are expected to outperform their peers [1: 213].

Many teachers hesitate to abandon competition and competitive games, believing that competition is the only way to motivate children and to get them to stretch their abilities as far as possible. Yet, after extensive experimentation, Johnson and Johnson (1) concluded that "a competitive goal structure does not yield higher achievement than a cooperative goal structure." (1: 218). Nelson and Kagan (2) found that children tended to compete in conflict-of-interest situations, and the tendency often interfered with adaptive, cooperative problem-solving. Nelson and Kagan (2) state that American students cooperated so seldom that it appeared that the environment provided these children contained no experiences to acquaint them with the possibilities of the skills of cooperation.

Can the skills associated with cooperation be taught to children? Several studies have focused on the establishment of cooperative behaviors among children and have explored the behaviors displayed in cooperative and in competitive situations. In a study by Nelson and Madsen (3) thirty-six pairs of four-year-olds played a game that required cooperative interaction to get a prize. Two different conditions were explored, one a "limited reward" condition in which only one child could get the prize and the other a "cooperative condition" in which both children could get a prize if they coordinated their efforts. The researchers found that in the cooperative condition subjects quickly learned to assist each other, while in the competitive situation most of the interaction was dominated by one child in the pair. The authors concluded that the limited reward stimulated maladaptive interaction.

If the ways in which children interact are to change, it is not enough to simply abandon old, competitive practices. As Johnson and Johnson (1) state:

> If students have rarely experienced a goal structure other than competition in school, they will tend to form competitive goal structures when left to their own devices. If all the organizational pressures within the school are based upon the traditional competitive goal structure, students will tend to behave competitively, whenever they are left "free to choose" [1: 216].

In an article critical of open education, Kozol (4) states that the notion of a "neutral" environment with a "non-directive" teacher is a delusion; to provide no goal structure is to ask students to place the traditional competitive structure upon themselves.

Kozol's observation points to the need to teach children to interact in cooperative, mutually beneficial ways. Johnson and Johnson (5) state:

> We are for cooperation, not only because the sharing, helping, communicating, and mutual concern aspects of it are consonant with our values, but also because the research supports its use in a large number of situations. All the research we have reviewed, the research we have conducted, and our own instincts indicate that cooperation is the appropriate goal structure for most instructional situations. It also seems to be the least talked about, if not the least used, goal structure in schools [5: vi].

Research has shown that children can be taught to cooperate. The researchers Mithaug and Burgess (6) found that when a task required cooperation the children worked out ways to watch each other and to coordinate their movements so as to get the reward. Some attempts at coordination were extremely elaborate and sophisticated, involving group counting and the designation of a group leader. One of the most important experiments in this area was done by Azrin and Lindsley (7). In their experiment, two children sat opposite each other and had to insert pointed rods into opposite holes within .04 seconds of each other to have a jelly bean appear. The experiment was carried out with ten cooperative teams, and the results showed that in the first ten minutes of experimentation, all teams learned to cooperate without specific instructions. This experiment is important because it established the fact that cooperation can be taught by arrangement of the environment without specifically telling children what to do. The experiment by Azrin and Lindsley negates the notion that a verbal explanation of either cooperation or competition is necessary to teach those behaviors. Teachers, therefore, have the responsibility for arranging the environment so that desirable behaviors are displayed. To evaluate the effects of a game, one must look at what the children do during the game. The worth of a game is best measured by the children's behavior, not the teacher's intentions. Attempts to teach cooperation by structuring a competitive situation and then telling the students to "cooperate" are not likely to be successful.

Even if we accept the importance of teaching children to cooperate, it is still reasonable to question the value of games in encouraging cooperation. Do games really matter? If I am interested in teaching cooperative skills in the classroom, why bother with games? The answers to these apparently simple questions are complex. Many teachers look on games as a way of structuring fun, a way of balancing academic study. Games do, nonetheless, structure interactions between children, and it is often difficult to control the impact of a game or to limit its effects to game time. Teachers whose pupils have returned from physical education class still feuding about who was really out in the Dodge Ball game, or still picking on a classmate because "he made us lose," know that time divisions may not be clear-cut. The schedule on the board may say

10:00–10:30 Math
10:30–10:45 Game Time
10:45–11:30 Reading

but the boundaries are blurred. Proponents of role-playing for children often use this propensity for carry-over, hoping to structure interaction between nonfriends—interaction that will affect their behavior outside the role-playing situation. It should not be astonishing that teachers often see in games illicit as well as licit extensions of social behaviors.

Many teachers who are seriously concerned with the interaction patterns in their classroom conscientiously seek strategies in teaching and in management that encourage cooperation, sharing, turn-taking, and other socially desirable resolutions to conflict. It may be useful to examine the games these same teachers initiate—not what the games say they are designed for, but what the children will be doing to, for, or with one another. One may well find basic contradictions between the solutions the teacher proposes to common classroom problems and the solutions a game dictates for similar problems. Take one problem that teachers often face: finding themselves with more students than materials—twenty-five students and only seventeen copies of the social studies textbook. In such a situation, teachers generally encourage children to share books, to take turns with them. If each child cannot have a book, the problem must be worked out. Many games structure situations of scarcity (Musical Chairs, Indian Club Snatch). Each child must get one object (a chair, a club), and the children who do not are eliminated. In such a situation, behaviors that lead to success are grabbing, pushing, or in other ways monopolizing materials. One would certainly not want to argue, simplistically, that the game causes pushing and grabbing in other situations. Yet, one must surely question the lack of consistency between learning to share and learning to win, and wonder what message children really get.

Similarly, many teachers are concerned with building an atmosphere of trust in their classroom. They want their students to treat one another with compassion and concern, and to have confidence that no one is out to get them or to do them disservice. Yet, many teachers also play Simon Says with their students, structuring a situation in which children deliberately try to confuse and trick their classmates into making a mistake. Additionally, the leader of Simon Says can by his or her verbal report eliminate another child. Differences between leader and player can lead to the familiar cycle: "You're out, you touched your elbow, I saw." "No, I did not." "You're a liar." One could look at such interactions either as students' failings or as predictable components of the game, literally dictated or structured by the rules of the game.

Teachers must look at all aspects of their curriculum to determine what messages are being conveyed to children and what behaviors they are establishing through teaching and management. Games are ostensibly "only for fun" and therefore not thought of as needing serious analysis. Yet, games are part of the school day and part of what children do in school under the direction and the supervision of the teacher.

What exactly, then, would a cooperative instructional activity or game be like? What would the children do? An examination of a few games can make clear some principles of designing such activities.

One type of cooperative activity called a "Sequence Game" structures a situation in which children must watch one another for a cue to do their part. Their action becomes the cue for the next student. In one sequence game, each student receives a card. Some of the cards read:

> When someone hops like a bunny, you say, "What does an elephant do when he breaks his toe?"
>
> When someone gets up and asks a riddle, you say, "He calls a tow truck."
>
> When someone says, "He calls a tow truck," you get up and start swimming.
>
> When someone gets up and starts swimming, you say, "S/He's swimming the English Channel.
>
> When someone says, "S/He's swimming the English Channel," you say, "What channel is that on?"

One card is distributed to each member of the group. By following the instructions on the cards, the class presents a story, or scenario, or simply a series of one-liners. The interaction, however, is the key. To time efforts appropriately, the students must watch one another. They cannot simply take their turn; they must see where their part fits into the rest of the story. An activity of this kind strengthens the skill of synchronizing one's efforts to create a smooth flow of action.

This type of activity need not be limited to words. Players can do a series of pantomimes in which one player's movements are the cue for the next player's. Sequence activities can also be written for academic subjects. The activities might incorporate information about types of geological structures or the life of members of a different culture. Students with complementary skills or strengths might be given cards to share: a good reader might be paired with a good interpreter.

Many students and teachers know the game Concentration. This standard competitive game, like other similar games, can be modified to make it cooperative. In Concentration cards with matching words or pictures on them are all turned face down on the floor or the table, and students take turns trying to match cards. The competitive nature of the game keeps students from helping one another. To help another player is to contribute to someone else's success and your failure. In a game of Cooperative Concentration, all students take turns trying to make all the possible matches in the group. All the players sit in a circle, hiding their cards. Players take turns moving around the circle, calling for two cards to be revealed (the cards of two other players, or one card of the player taking a turn and one card of one other player). If the group agrees that the cards match, the pair of matching cards is put into the center. When all the cards have been matched, the game is won. A player who is no longer holding cards can still take turns calling on other players in his or her own turn. In such a game, the collaboration of players contributes to the success of the whole group. Players remember where cards are, call on fellow students by name, and make matches. A game such as this can be adapted to almost any subject area or level of difficulty. Young children could match cards showing colors with cards listing color words, numbers with numerals, and pictures of animals with the names of animals. Older children could match words and their definitions, sentences missing punctuation with the mark of punctuation needed, states with their capital cities, or presidents and their terms.

One important benefit emerges from cooperative games: children who have poor skills in a certain area can receive help and advice from children who are more skilled. In a competitive situation, the impetus for helping a less skilled player is simply not present. In a competitive math game, the child who can multiply only by using his fingers or beads will probably not be able to participate successfully, either because he will take longer and thus lose, or because using beads or fingers will be considered "unfair" by players who do not need such devices. In a cooperative situation, each child's success contributes to the success of the group, and players can be supportive of other members' alternative methods.

Traditional games can be made into cooperative activities. Dominoes can be played as a cooperative game in which the object of the game is for the group to use up as many dominoes as possible or to make the longest chain possible. Before beginning the game, the group can discuss various ways of incorporating as many players and as many pieces as possible. This idea can be extended to dominoes labeled with words that go together in some way. *Cat* may be matched with *kitten*, *colt* with *horse*, and *cow* with *calf*. *Topeka* can be matched with *Kansas*, *Madison* with *Wisconsin*, and *Columbus* with *Ohio*. Players can take turns placing the dominoes in the proper sequence.

When cooperative games are suggested, teachers often ask, "Will the children find them interesting and challenging after playing competitive games for most of their lives?" This question can be answered in several ways. Some children are likely to object when a new framework is established for a game. The objections can probably be overcome once children realize that the new games are not necessarily easier, only different. One must acknowledge that in many ways we have taught children what to consider fun. Our language and labeling socialize children to consider certain activities as work, others as play. Thus, objections can probably be overcome by having the children experience a cooperative game that is challenging and difficult, and that truly requires the effort of many children. We can teach children to consider as fun activities that do not involve a sole winner and multiple losers.

In determining whether a game is cooperative and in designing or modifying games so that they are cooperative, certain questions may be useful:

Is there real interaction or are children simply taking turns?

Will the students be talking to one another, asking one another questions, guiding one another physically?

If the game does not really demand interaction, can the rules be restructured so that interaction is necessary?

How much pressure is placed on any one individual player? If the answer is "lots," perhaps the game can be restructured so that mechanisms are provided for other students to help, coach, or in other ways assist players. With rules of this kind, the games can be played by children who are not equally matched in all ways, thus providing learning experiences (and perhaps teaching experiences) for all children.

Could one or more players simply sit back and not participate? Or, could a player or two take over the game and monopolize the action? If the answer to these questions is yes, you may need rules to prevent these eventualities and to insure that the energies, bodies, abilities, or skills of all children are used in some way. All children may not need to be doing the same thing, but all children should be needed.

The structuring of competitive, win-lose situations for children in the classroom is often considered necessary in "preparing children for the outside world." It is often said that only if children have experienced intensely competitive situations will they be able to deal with the competitive real world. This assumption can be countered on many levels. First, many activities in the real world involve and require cooperation. Much of our daily social interaction involves asking for and receiving information from others, group problem-solving, and integrating information from various sources. Furthermore, one can argue that the reality of the outside world is to a large extent a result of the preparation we give for it. If children experience only competitive structures in school, the likelihood of their establishing competitive structures when they are no longer in school is vastly increased. Teachers not only teach their students to live and work in the real world, but also play a prominent role in shaping that world. A new reality may be defined by preparing children differently. Lastly, even if we all agree that children will inevitably face some disappointments and failure in their adult lives, how best do we prepare children for such a fate? A strong argument can be made for the idea that the best preparation for failure in some areas is a long history of success, feelings of self-worth, and an honest appraisal of one's skills and abilities.

Schools did not invent competition; neither can they be the death of it. Teachers, however, can play a prominent role in teaching children to interact in different, more productive ways. As our schools mirror the wide diversity in our society, teachers will need to look closely at the role of schools in teaching children new patterns of interaction and acceptance of differences.

Note

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References

1. D. W. Johnson and R. T. Johnson. "Instructional Goal Structure: Cooperative, Competitive, or Individualistic," *Review of Educational Research, 44* (Spring, 1972), 213–40.
2. L. L. Nelson and S. Kagan. "Competition: The Star-spangled Scramble," *Psychology Today, 6* (September, 1972), 53–56, 90–91.
3. L. L. Nelson and M. C. Madsen. "Cooperation and Competition in Four-year-olds as a Function of Reward Contingency and Subculture," *Developmental Psychology, 1* (July, 1969), 340–44.
4. J. Kozol. "The Open Schoolroom: New Words for Old Deceptions," in *Challenge and Choice in Contemporary Education: Six Major Ideological Perspectives*, pp. 235–43. Edited by C. J. Lucas. New York, New York, Macmillan Publishing Company, 1976.
5. D. W. Johnson and R. T. Johnson. *Learning Together and Alone: Cooperation, Competition, and Individualization.* Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1975.
6. D. E. Mithaug and R. L. Burgess. "The Effects of Different Reinforcement Contingencies in the Development of Social Cooperation," *Journal of Experimental Child Psychology, 6* (September, 1968), 402–26.
7. N. H. Azrin and O. R. Lindsley. "The Reinforcement of Cooperation between Children," *Journal of Abnormal and Social Psychology, 52* (1956), 100–102.